PIONEER®
The Art of Entertainment

PION-04986

Service Manual

ORDER N
RRV146

STEREO TUNER CONTROL AMPLIFIER

CX-790

● Refer to the service manual RRV1148 for CX-770/ZU.

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	CX-790		
ZUXJ	O	DC power supplied from other system component	

- **This product is a component of a system.**
  For instruction manual, refer to the service manual RRV1465 for M-790.
- **This product does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**

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T-FZB JAN. 1996 Printed in Jap

● CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	→	*56 × 10¹*	→ *561*	*RD1/4PU561J*
47kΩ	→	*47 × 10³*	→ *473*	*RD1/4PU473J*
0.5Ω	→	*0R5*		*RN2H0R5K*
1Ω	→	*1R0*		*RS1P1R0K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	→	*562 × 10¹*	→ *5621*	*RN1/4PC5621F*

CX-790/ZUXJ and CX-770/ZU have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		CX-770/ZU	CX-790/ZUXJ	
	FM/AM TUNER MODULE	AXQ1012	AXQ3112	
	DOL. PRO. MOD. ASSY	AXQ1021	AXQ3121	
NSP	Chassis	ANA7012	ANA1228	
	Rear panel	ANC7130	RNA2038	
NSP	PCB mold	AMR1525	Not used	
	PCB mold	Not used	AMR2533	
	Round knob	AAB2226	AAB1341	
	Front panel	AMB7091	RAH2693	
	Loop antenna	ATB1012	ATB7004	
	Remote control unit (CU – CX006)	AXD7022	Not used	
	Remote control unit (CU – CX008)	Not used	RPX1110	
	Battery cover	AZA7028	AZA7123	
NSP	Battery (R6P, AA)	AEX – 010	VEM – 013	
	Packing case	AHD7057	RHG1709	
	Side pad No.1	AHA7022	Not used	
	Side pad No.2	AHA7023	Not used	
	Front pad	Not used	AHA1665	
	Rear pad	Not used	AHA1666	

FM/AM TUNER MODULE

AXQ3112 and AXQ1012 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AXQ1012	AXQ3112	
	AM RF tuning block	AXX1041	AXX1025	

DOL. PRO. MOD. ASSY

AXQ3121 and AXQ1021 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AXQ1021	AXQ3121	
	C1852, C1853	ACH1270 ✱1	CEAS100M50	✱1:10μF/50V
	C1864, C1865	ACH1262 ✱2	CEAS101M16	✱2:100μF/25V
	R1849	RS1/10S000J	RS1/10S331J	

PION-05022

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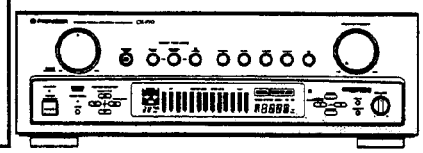

ORDER NO.
RRV1148

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

STEREO TUNER CONTROL AMPLIFIER

CX-770S

CX-770

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	Remarks
	CX-770S	CX-770		
ZU	○	○	DC power supplied from other system component	
ZC	○	—	DC power supplied from other system component	

- **This product is a component of a system.**
  For instruction manual, refer to the service manual RRV1166 for M-770.
- **This product does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**
- **The "S" at the end of the model number indicates that a programmable remote control unit is supplied.**

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T-FFF JUNE 1994 Printed in Japan

CHAPTER 1

1.1 SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

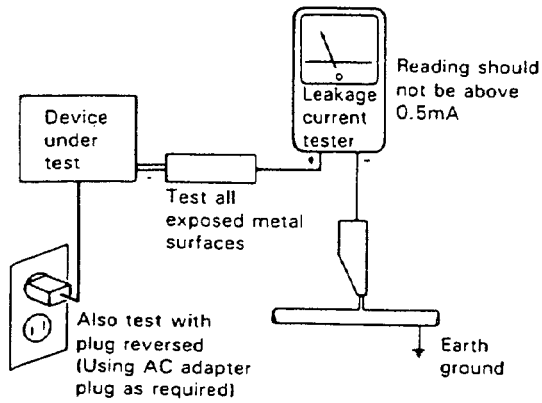
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

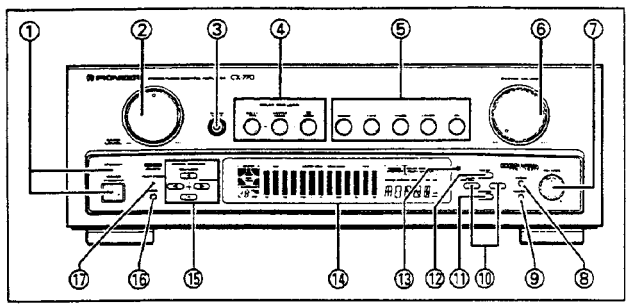
Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

1.2 PANEL FACILITIES

■ TUNER CONTROL AMPLIFIER SECTION

• Illustration shows model CX-770.



① POWER (STANDBY/ON) switch and STANDBY indicator

This is the switch for electric power.

ON : When set to the ON position, power is supplied and the unit becomes operational.

STANDBY : When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness. When the STANDBY indicator is on, the unit is in STANDBY.

Disconnect the power cord from the power outlet when you do not plan to use the power amplifier for a long period of time.

② BASS LEVEL control

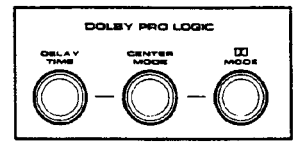
Press the POWER BASS button ON and the bass level can be changed.
To adjust the low and high frequency sound, use the POWER BASS level control.
When this control is set to the MIN position, the sound has no effect.
To boost the low and high frequency sound, rotate the control to the right (to the MAX position).

③ POWER BASS button

Use to switch the POWER BASS function on and off. (For emphasized bass sounds.)

④ SURROUND function button(s)

Surround play back is not possible with a monophonic sound source (no sound from rear speaker).



• **DD MODE button**

Used to select a desired DOLBY mode position.
The mode changes in the following manner each time this button is pressed.

→ PRO LOGIC → 3CH LOGIC → DD MODE off →

• **DELAY TIME button**

Use this button to select a delay time.
The time changes in the following manner each time this button is pressed.

→ 15 ms → 20 ms → 25 ms → 30 ms →

• **CENTER MODE button**

This button selects the surround center mode.

⑤ Function buttons

The selected mode is indicated in the display.

⑥ MASTER VOLUME control

The volume is increased when this control is turned clockwise, decreased when turned counterclockwise.

⑦ BALANCE control

Use this control to adjust the left—right balance for the front speakers.

⑧ MONO button

During FM reception: Switches between stereo and monaural modes when listening to a stereo broadcast. If there is too much noise in the stereo position, switch to MONO and the noise will be suppressed.

⑨ MEMORY button

This button is used to memorize stations. When the button is pressed, the frequency indication will flash.

⑩ TUNING/STATION CALL buttons (−, +)

These are used to locate stations. Push the "−" button to locate a station broadcasting on a lower frequency and the "+" button to locate a station on a higher frequency.

⑪ ST/FREQ (station/frequency) button

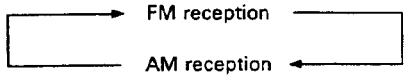
Use this button to select between STATION CALL and FREQUENCY position.

STATION CALL : This is used to preset stations and recall preset stations.

FREQUENCY : See item ⑩, TUNING/STATION CALL buttons.

⑫ FM/AM selector button

This is used to select the band of the desired station. The bands change alternately each time the button is pressed.



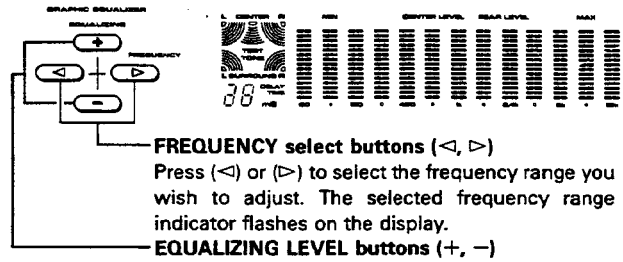
⑬ REMOTE SENSOR window

⑭ Display section

Shows the received broadcast frequency or station call number, reception conditions and graphic equalizer level settings.
For more details, refer to DISPLAY FACILITIES.

⑮ GRAPHIC EQUALIZER controls

The advantage of the GRAPHIC EQUALIZER over conventional tone controls is that the controls of the GRAPHIC EQUALIZER make it possible to control seven different narrow, distinct sections of the audio band. With conventional tone controls a setting for a bass or treble boost or cut will also affect the lower or upper mid frequencies. The seven frequency bands controlled by the cursor controls have been chosen to yield the maximum possible control action within the audio spectrum.



FREQUENCY select buttons (◁, ▷)
Press (◁) or (▷) to select the frequency range you wish to adjust. The selected frequency range indicator flashes on the display.

EQUALIZING LEVEL buttons (+, −)
Adjust the level of the selected frequency range. Press (+) to increase the level and press (−) to decrease it.
To return to the flat position, press the EQUALIZING (+), (−) buttons simultaneously.

NOTE:

- *The GRAPHIC EQUALIZER controls function in the playback mode only. They do not function when recording.*
- *If you remove your finger from the button, the indicator stops flashing after a few seconds and the Adjustment Mode is canceled. If this happens, press the button once more to select the Adjustment Mode.*

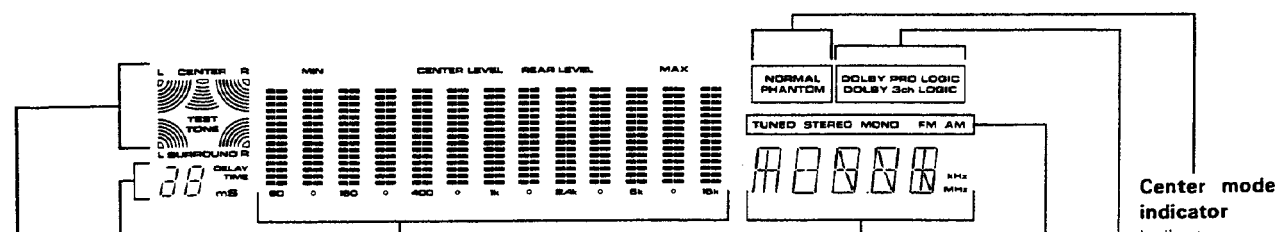
⑯ DEMO button

Refer to the cover.

⑰ MULTI-ROOM indicator

Flashes when the signal is tuner control amplifier.

DISPLAY FACILITIES



Delay time indicator
Indicates the PRO LOGIC mode.

Surround indicator
Indicates the PRO LOGIC mode and 3CH LOGIC mode.

Function display
Normally functions as a spectrum analyzer. Also, displays the selected function.

Frequency display
In TUNER mode, frequency is displayed.

Tuner indicators
Indicates the tuning mode.

Center mode indicator
Indicates DOLBY PRO LOGIC with the CENTER mode.

Dolby mode
Indicates the PRO LOGIC mode and 3CH LOGIC mode.

REMOTE CONTROL UNIT FACILITIES

[For CX-770 Remote Control Unit]

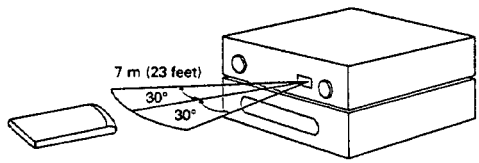
Range of remote control

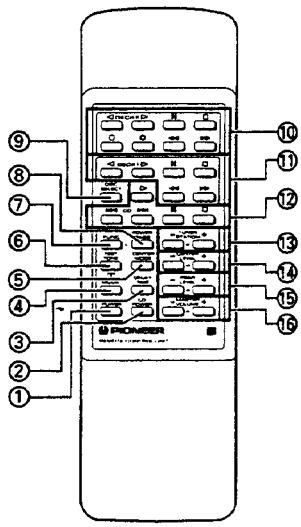
When the remote control unit is pointed at the REMOTE SENSOR window on the tuner control amplifier and any of its buttons is pressed, the tuner control amplifier and other components can be operated by remote control.

Distance : Within a range of approx. 7 meters (23 feet) from the REMOTE SENSOR window.

Angle : Within approx. 30 degrees from the center of the REMOTE SENSOR window.

Remote control will not be possible if there is an obstacle between the remote control unit itself and the REMOTE SENSOR window. Performance of the remote control unit is adversely affected in the presence of a strong fluorescent light. Keep such lights away, especially from the sensor window.





① AMP POWER button

When the power to tuner control amplifier is ON, you can switch power ON and OFF (Standby) with the POWER button on the remote control.

② CD POWER button

Switches CD player power ON/OFF.
Refer to the CD player's operating instructions in detail.

③ DELAY TIME button

Use to select a delay time.
The time changes in the following manner each time this button is pressed.

→ 15 ms → 20 ms → 25 ms → 30 ms →

④ DOLBY MODE button

Use to select a desired DOLBY mode position.
The mode changes in the following manner each time this button is pressed.

→ PRO LOGIC → 3CH LOGIC → DOLBY MODE off →

⑤ CENTER MODE button

Use to select between PHANTOM and NORMAL in order to set the correct surround center mode.

⑥ TEST TONE button

When the unit is in surround mode and the test tone button is pressed ON, a test tone sound will be output from each speaker in turn. Use this function to assist you when adjusting your equipment controls so that the volume from all channels is equal.
This button is on remote control unit only.

⑦ FUNC (function) button

⑧ POWER BASS button

Use to switch the POWER BASS function ON/OFF (for emphasized bass sound).

⑨ DISC SELECT button

Used for disc selection on a multi-play CD player.
Refer to the CD player's operating instructions in detail.

⑩ Cassette deck operation buttons (DECK II)

◄ DECK II ► : Selects forward/reverse playback.
❚❚ : Pause (Stops temporarily.)
■ : Stop (Stops tape transport.)
◄◄ : REW (Rewinds the tape.)
►► : FF (Fast forward)
● : REC (Sets the recording mode.)
○ : Rec Mute

Refer to the cassette deck's operating instructions in detail.

⑪ Cassette deck operation buttons (DECK I)

◄ DECK I ► : Selects forward/reverse playback.
❚❚ : Pause (Stops temporarily.)
■ : Stop (Stops tape transport.)
◄◄ : REW (Rewinds the tape.)
►► : FF (Fast forward)

Refer to the cassette deck's operating instructions in detail.

⑫ CD operation buttons

■ : Stop
❚❚ : Pause
► : Playback
⏮, ⏭ : Track search

Refer to the CD player's operating instructions in detail.

⑬ TUNER STATION − (down), + (up) buttons

Before operation, memorize broadcast stations with the STATION CALL button.
+ .... Stations change in order in the upward direction.
− .... Stations change in order in the downward direction.

⑭ CENTER LEVEL − (down), + (up) buttons

Use these to independently adjust the center speaker system volume level for the optimum front-center volume balance.
This button is on remote control unit only.

⑮ REAR LEVEL − (down), + (up) buttons

Use these to independently adjust the rear speaker system volume level for the optimum front-rear volume balance.
This button is on remote control unit only.

⑯ MASTER VOLUME − (down), + (up) buttons

Increases/decreases the sound volume of the unit.
When using these buttons, MASTER VOLUME indicator on the main unit flashes.

REMOTE CONTROL OF TUNER CONTROL AMPLIFIER

AUDIO • • VIDEO

Set the AUDIO/VIDEO switch to AUDIO.

SURROUND function buttons:
DOLBY PRO LOGIC button:
Switches the DOLBY PRO LOGIC SURROUND function ON/OFF.

3CH LOGIC button:
Switches the 3CH LOGIC function ON/OFF.

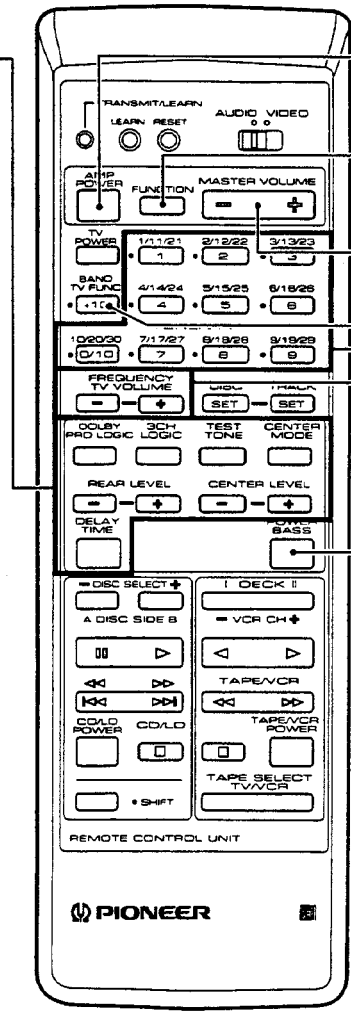
TEST TONE button:
Used when DOLBY PRO LOGIC SURROUND, DOLBY 3CH LOGIC is in the on position.
Used to adjust the test tone volume level from each speaker.

CENTER MODE button:
Set the DOLBY PRO LOGIC center mode to NORMAL/PHANTOM.

DELAY TIME button:
This functions as a DELAY TIME button. During DOLBY PRO LOGIC SURROUND operation, delay time settings can be changed from 15 ms to 30 ms in 5 ms steps.
The DELAY TIME button does not operate in any other surround mode.

REAR LEVEL −/+ buttons:
This functions as a REAR LEVEL button.
Adjust the sound level of the rear speakers.

CENTER LEVEL −/+ buttons:
This functions as a CENTER LEVEL button.
Adjust the sound level of the center speaker.



AMP POWER button:
Switches the tuner control amplifier power between ON and STANDBY.

FUNCTION button:
Used to change the tuner control amplifier function.

MASTER VOLUME −, + buttons:
Adjusts the overall volume.

BAND button:
Switches the FM and AM bands in turn.

1—30 (STATION CALL) buttons:
For direct tuning of stations stored in STATION CALL memory.
Each time you press any one of the buttons, the indications displayed at the top of the buttons change in sequence.
(Example)

→ 1 → 11 → 21 → 1/11/21 with button [1]

This lets you select desired numbers when specifying station channels.

FREQUENCY −, + buttons:
Shifts the frequency up (+) and down (−).

POWER BASS button:
Use to switch the POWER BASS function on and off. (For emphasized bass sound.)

1.3 SPECIFICATIONS

FM Tuner Section

Frequency Range	87.5 MHz to 108 MHz
Usable Sensitivity	19 dBf, IHF (2.4 μV/75 Ω)
50 dB Quieting Sensitivity	Mono 25 dBf: (4.9 μV/75 Ω)
Signal-to-Noise Ratio (IHF, 85 dBf Input)	Mono: 73 dB
Stereo Separation	35 dB (1 kHz)
Antenna Input	75 Ω unbalanced

AM Tuner Section

Frequency Range	530 kHz to 1,700 kHz
Sensitivity (IHF, Loop antenna)	800 μV/m
Antenna	Loop Antenna

Miscellaneous

Dimensions
CX-770/CX-770S ..... 420 (W) x 140 (H) x 297 (D) mm
16-9/16 (W) x 5-1/2 (H) x 11-11/16 (D) in
Weight (without package)
CX-770/CX-770S ..... 3.2 kg (7 lb 2 oz)

Accessories

FM Antenna	1
AM Loop Antenna	1
Operating Instructions	1
Remote Control Unit	
CX-770	1
CX-770S	1
Dry Cell Batteries	2
Warranty card	1

NOTE:
- *Specifications and design are subject to possible modifications without notice due to improvements.*

Manufactured under license from Dolby Laboratories Licensing Corporation. Additionally licensed under one or more of the following patents: U.S. number 3, 959, 590: Canadian numbers 1, 004, 603 and 1, 037, 877. "Dolby", "Pro Logic", and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

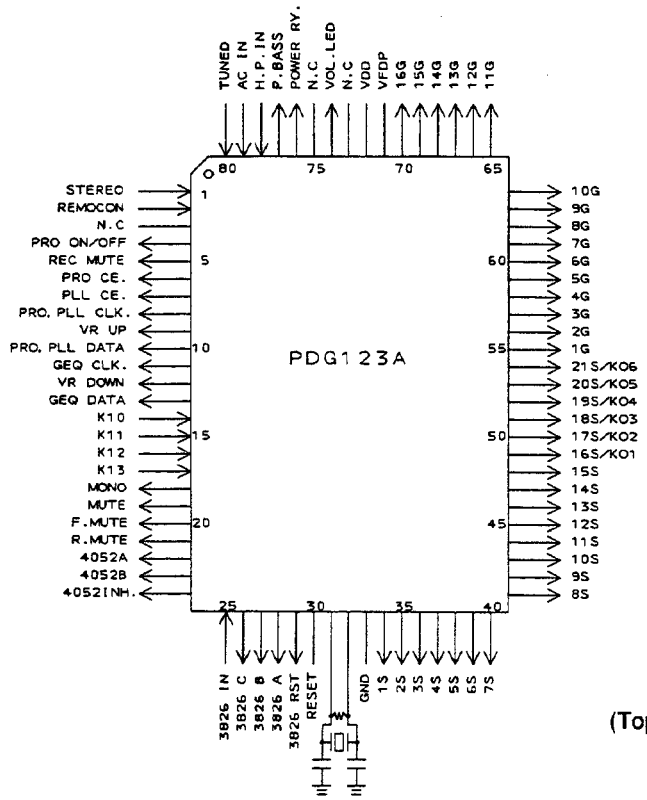
1.4 IC INFORMATION

■ PDG123A (DISPLAY ASSY IC301)

● CPU

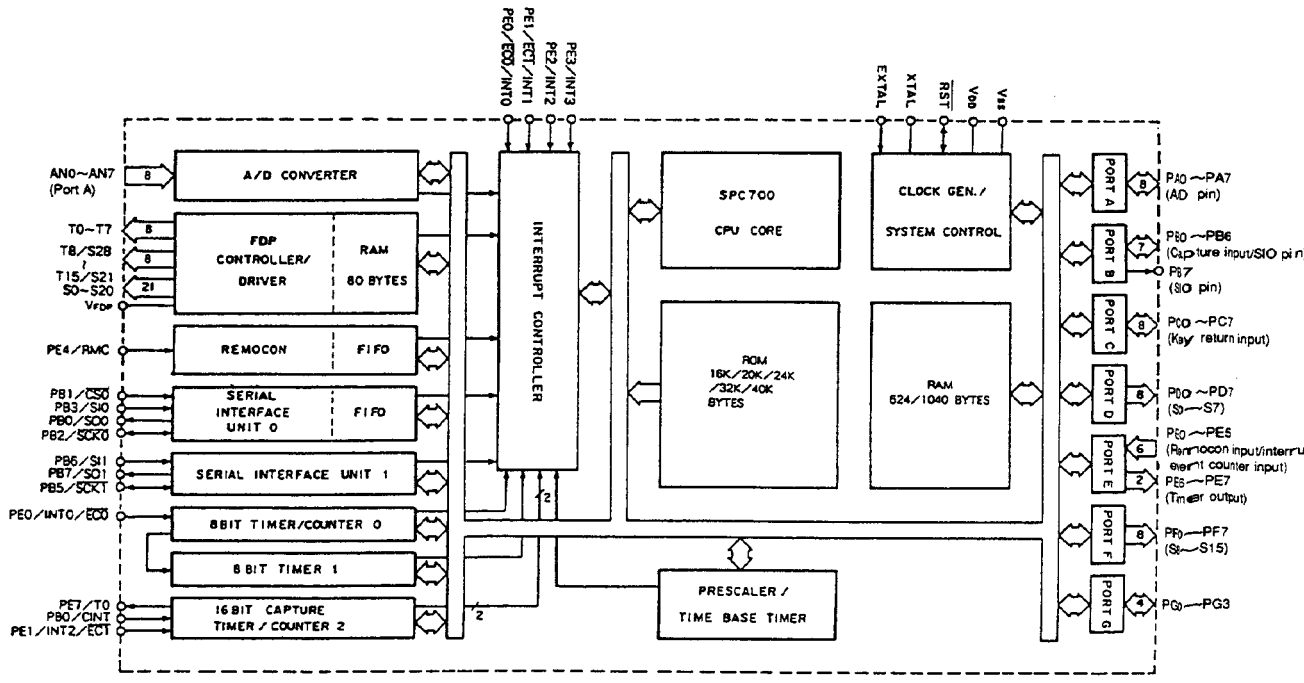
- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● Pin Assignment



(Top view)

● Block Diagram



• Pin function (PDG123A)

No.	Pin name	I/O	Function
1	STEREO	I	STEREO IN
2	REMOCON	I	REMOCON IN
3	NOT USED	I	PULL DOWN OR UP
4	PRO ON/OFF	O	PRO LOGIC ON/OFF
5	REC MUTE	O	REC MUTE
6	PRO CE	I/O	PRO LOGIC CE
7	PLL CE	I/O	PLL CE
8	PRO, PLL CL	I/O	PRO, PLL CLOCK
9	VR UP	I/O	VOLUME UP
10	PRO, PLL DA	I/O	PRO, PLL DATA
11	GEQ CLK	I/O	GEQ CLOCK
12	VR DOWN	I/O	VOLUME DOWN
13	GEQ DATA	O	GEQ DATA
14	KI0	I/O	KEY IN 0
15	KI1	I/O	KEY IN 1
16	KI2	I/O	KEY IN 2
17	KI3	I/O	KEY IN 3
18	MONO	I/O	MONO ON/OFF
19	MUTE	I/O	PLL MUTE
20	F. MUTE	I/O	FRONT MUTE
21	R. MUTE	I/O	REAR MUTE
22	4052A	I/O	4052 A
23	4052B	I/O	4052 B
24	4052 IHN	I/O	4052 INHIBIT
25	3826 IN	I/O	3826 IN
26	3826 C	I/O	3826 C
27	3826 B	I/O	3826 B
28	3826 A	I/O	3826 A
29	3826 RST	I/O	3826 RESET
30	RESET	I/O	RESET CONNECTION
31	EXTAL	I	8.00MHz OSCILLATOR CONNECTION
32	XTAL	—	8.00MHz OSCILLATOR CONNECTION
33	GND	—	GND
34	1S	O	1 SEG FL ANODE P14
35	2S	O	2 SEG FL ANODE P15
36	3S	O	3 SEG FL ANODE P16
37	4S	O	4 SEG FL ANODE P17
38	5S	O	5 SEG FL ANODE P18
39	6S	O	6 SEG FL ANODE P19
40	7S	O	7 SEG FL ANODE P20
41	8S	O	8 SEG FL ANODE P21
42	9S	O	9 SEG FL ANODE P22
43	10S	O	10 SEG FL ANODE P23
44	11S	O	11 SEG FL ANODE P13
45	12S	O	12 SEG FL ANODE P14

No.	Pin name	I/O	Function
46	13S	O	13 SEG FL ANODE P11
47	14S	O	14 SEG FL ANODE P10
48	15S	O	15 SEG FL ANODE P9
49	16S/K01	O	16 SEG FL ANODE P8/KEY OUT1
50	17S/K02	O	17 SEG FL ANODE P7/KEY OUT2
51	18S/K03	O	18 SEG FL ANODE P6/KEY OUT3
52	19S/K04	O	19 SEG FL ANODE P5/KEY OUT4
53	20S/K05	O	20 SEG FL ANODE P4
54	21S/K06	O	21 SEG FL ANODE P3
55	1G	O	1 GRED
56	2G	O	2 GRED
57	3G	O	3 GRED
58	4G	O	4 GRED
59	5G	O	5 GRED
60	6G	O	6 GRED
61	7G	O	7 GRED
62	8G	O	8 GRED
63	9G	O	9 GRED
64	10G	O	10 GRED
65	11G	O	11 GRED
66	12G	O	12 GRED
67	13G	O	13 GRED
68	14G	O	14 GRED
69	15G	O	15 GRED
70	16G	O	16 GRED
71	VFDP	—	VFDP
72	VDD	—	VDD
73	NOT USED	—	CONNECTED TO VDD
74	VOL LED	I/O	VOLUME LED
75	NOT USED	I/O	NOT USED
76	POWER RY.	I/O	POWER RELAY
77	P. BASS	I/O	P. BASS ON/OFF
78	H. P. IN	I	HEADPHON IN
79	AC IN	I	AC IN
80	TUNED	I	TUNED IN

1.5 FL INFORMATION

● V301: AAV7007

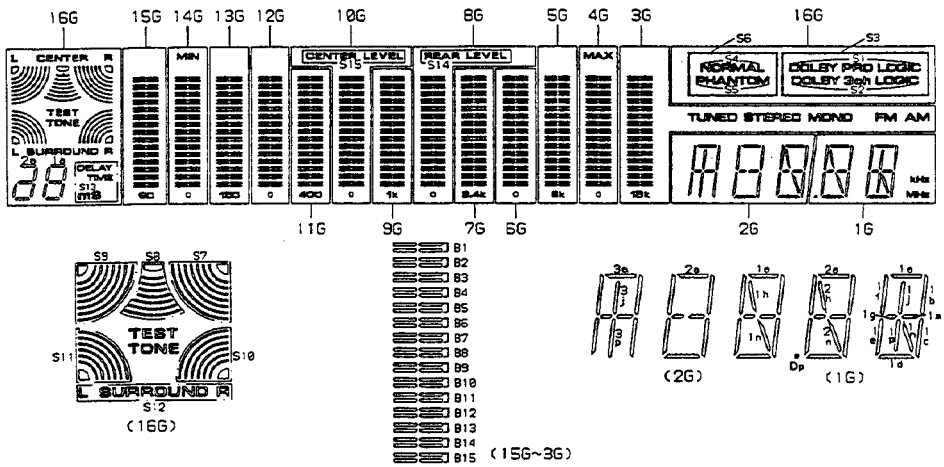
PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
CONNECTION	F1	F2	NP	NX	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

PIN NO.	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
CONNECTION	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

NOTE
1) F1,F2 --- Filament
2) NP ------ No pin
3) NX ------ No extend pin
4) DL ------ Datum Line
5) 1G~16G --- Grid
6) IC ------ Internal connection
7) Fd terminals are to be supplied through 27kΩ from Ec.

GRID ASSIGNMENT



ANODE CONNECTION

	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	S6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P2	S3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P3	S4	-	-	-	-	-	-	-	-	-	-	-	-	AM	3f,3e	kHz
P4	S5	-	MIN	-	-	-	S15	-	S14	-	-	-	MAX	FM	3c	MHz
P5	S1	-	-	-	-	-	-	-	-	-	-	-	-	MONO	1a	1a
P6	S2	-	-	-	-	-	-	-	-	-	-	-	-	STEREO	1b	1b
P7	L R	-	-	-	-	-	-	-	-	-	-	-	-	TUNED	1f	1f
P8	CENTER	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	1h,1n	1j,1p
P9	S7	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	1g,1m	1g,1m
P10	S8	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	1c	1c
P11	S9	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	1e	1e
P12	TEST TONE	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	3a	1n
P13	S10	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	1d	1d
P14	S11	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	2a	2a
P15	S12	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	2b	2b
P16	2e	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	2f	2f
P17	2a,2g,2d	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	3b	2h,2n
P18	2b	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	2g,2m	2g,2m
P19	2c	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	2c	2c
P20	1a,1c,1d,1f	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	2e	2e
P21	1g	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	2d	2d
P22	1b,1e	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	3j,3p	Dp
P23	S13	60	0	150	0	400	0	1k	0	2.4k	0	8k	0	15k	3g,3m	-

1.6 ADJUSTMENTS

ADJUSTMENT OF THE FM TUNER SECTION

●Set the FM/AM selector to FM BAND.
●Connect the wiring as shown in the Fig.1.

Step No.	Adjustment Title	FM SG (1kHz,±75kHz dev.)		Reception Frequency Display	Adjustment	
		Frequency (MHz)	Level (dBμ V)		Adjustment Location	Specifications
1	Center adjustment	98	80	98.0MHz	L6207	Adjust so that DC voltage between the IC6201-pin4 and pin 28(or⊕leads of C6224 and C6261) becomes 0V±50mV.
2	Front-end sensitivity adjustment	98	Low input (0 to 30)	98.0MHz	L6102 T6101	Adjust so that the DC voltage between the IC6201- pin12 and GND(or⊕lead of C6238 and GND) becomes maximum level.
3	TUNED IND. Lighting level	98	15 (±2dB)	98.0MHz	VR6201	Adjust so that the indicator of TUNED IND. starts to light up.

ADJUSTMENT OF MW TUNER SECTION

●Set the FM/AM selector to AM(MW)BAND.
●Connect the wiring as shown in the Fig.1.

Step No.	Adjustment Title	AM SG (400Hz,30% Mod.)		Reception Frequency Display	Adjustment	
		Frequency (kHz)	Level (dBμ V/m)		Adjustment Location	Specifications
1	TUNED IND. Lighting level	1000	47(±2dB)	1000kHz	VR6202	Adjust so that the indicator of TUNED IND. starts to light up.

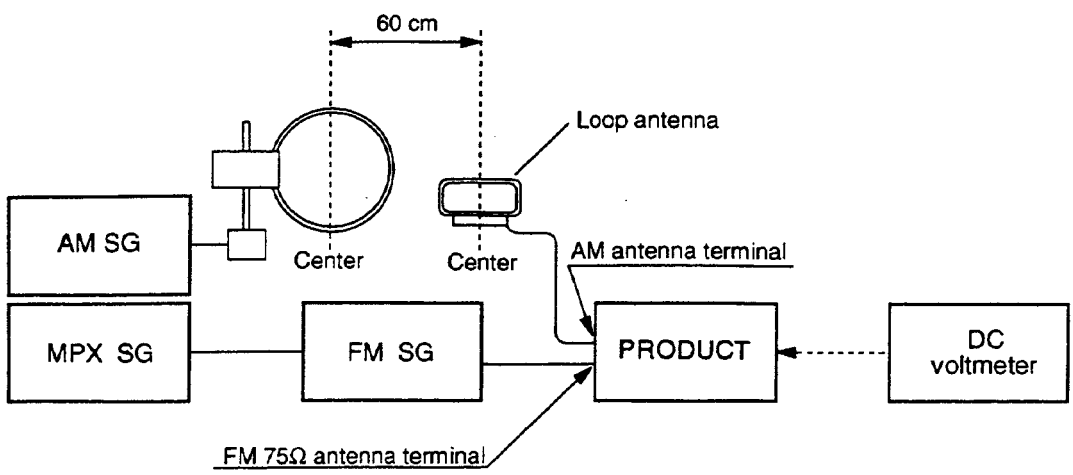


Fig. 1 AM and FM adjustment wiring diagram

FM/AM TUNER MODULE

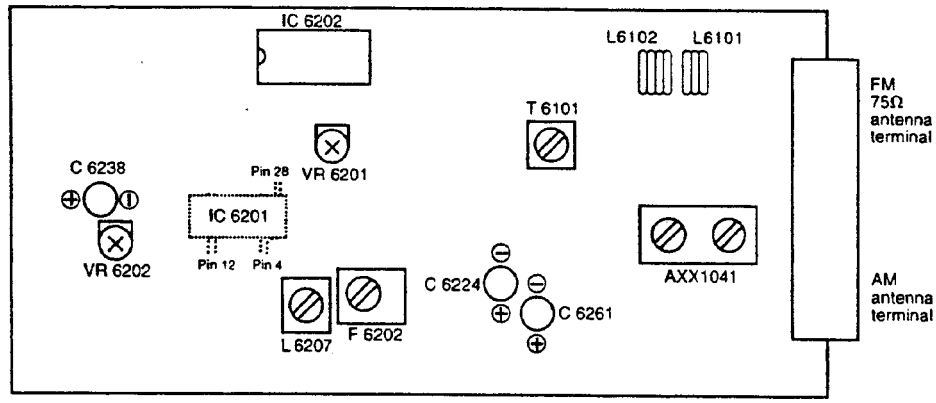


Fig. 2 Adjustment location

1.7 TROUBLESHOOTING

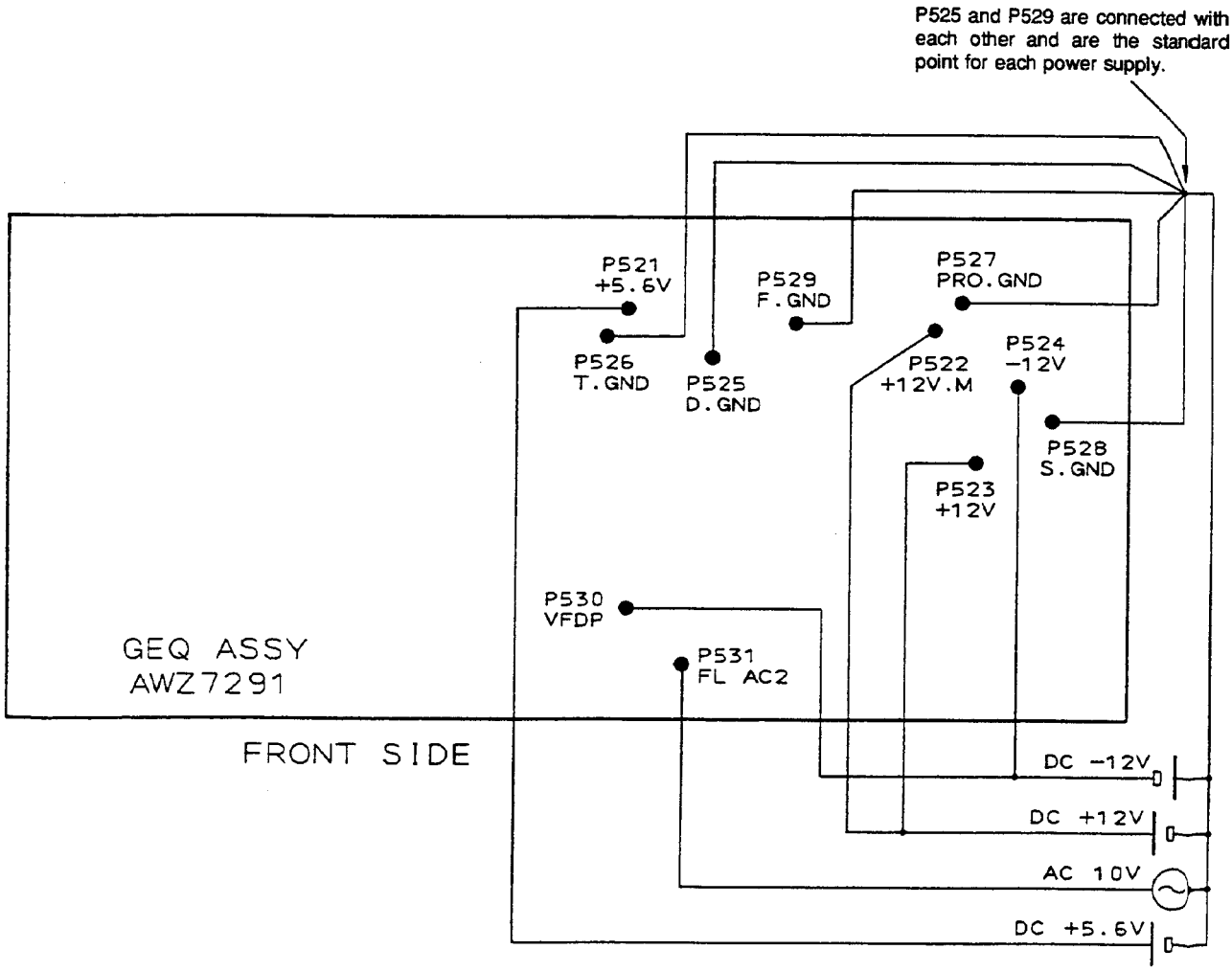
How to Repair CX—770 and CX—770S

As CX—770 and CX—770S are supplied with power form the various types of power supplies of M—770, please carry out repair in combination with M—770.

How to Repair CX—770 and CX—770S only.

When checking of the operation of only CX—770 and CX—770S is required the operation can be easily checked according the following procedures. (The FL display will not light.)

1. Short-circuit both edges of C303 on the DISPLAY ASSY (AWZ7290) and pull out the charge. (In order to erase the last memory)
2. Connect external power supplies, as shown below, to the TP terminal (P521—P531) on the GEQ ASSY (AWZ7291).



3. When supplying the various power supplies mentioned in 2 above, the standby LED will light and the standby function is activated.
4. When pressing the standby switch, the set will enter normal operation status (the standby LED goes out). However, the FL display will not light.
5. The set is set to the following initialization status.
   Input switching : Tuner (FM87.5MHz)
   DOLBY PRO LOGIC : OFF
   Graphic Equalizer : FLAT

After this, you can carry out the various required settings by the normal operation method and check the operation.

1.8 PARTS LIST FOR REMOTE CONTROL UNIT (CU-CX007)

1.8.1 PARTS LIST

NOTES :

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Description	Parts No.
	1	PLATE	AZA7068
	2	RUBBER SHEET (A) (S102)	AZA1985
	3	RUBBER SHEET (B) (S103)	AZA7069
	4	TERMINAL	AZB1334
	5	SCREW	AZB1335
	6	TERMINAL (A)	AZB1379
	7	TERMINAL (B)	AZB1380
	8	CASE (A)	AZN7143
	9	CASE (B)	AZN2255
	10	BATTERY COVER	AZN2256
	11	FILTER	AZN2257
NSP	12	P. C. BOARD	AZN2258
	13	KNOB (VIDEO/AUDIO)	AZN2259
	14	FRAME	AZN2260
	15	SLIDE SW (S101)	AZS1134

1.8.2 PCB PARTS LIST

NOTES :

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω → 56 × 10^1 → 561 ····· RD1/8PM 5 6 1 J
47kΩ → 47 × 10^3 → 473 ····· RD1/4PS 4 7 3 J
0.5Ω → 0R5 ····· RN2H 0 R 5 K
1Ω → 010 ····· RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562 × 10^1 → 5621 ····· RM1/4PC 5 6 2 1 F

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC1	μ−COM	AZC7024
	IC2	IC	PST9121N
	Q1	CHIP TRANSISTOR	2SC3265
	D1	LED	SE303A−C
	D2	CHIP DIODE	RLS73
	D3	DIODE	SPS−503C−3
	D4, 5	CHIP DIODE	RLS73
	D6	LED	SLC−22VR
CAPACITORS			
	C1	ELECT. CAPACITOR	CEAS221M25
	C2	ELECT. CAPACITOR	CEAS101M10
	C3	ELECT. CAPACITOR	CEAS0R1M50
	C4, 5	CERAMIC CAPACITOR	CCDSL330J50
	C6	ELECT. CAPACITOR	CEAS101M10
	C7	CERAMIC CAPACITOR	CCDSL101J50
	C8	ELECT. CAPACITOR	CEAS0R1M50
RESISTORS			
	R1	CARBON FILM RESISTOR	RD▶1/4PM020J
		Other resistors	RD▶1/8PM□□□J
OTHERS			
	X1	RESONATOR	FC▶R4.0MC3

1.9 PARTS LIST FOR PACKING AND EXPLODED VIEWS

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

(1) CONTRAST OF CX-770S/ZU, CX-770S/ZC AND CX-770/ZU

● CX-770S/ZU, CX-770S/ZC AND CX-770/ZU have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.		
			CX-770S/ZU	CX-770S/ZC	CX-770/ZU
	12	Front panel	AMB7094	AMB7094	AMB7091
	38	Packing case	AHD7061	AHD7061	AHD7057
	31	Remote control unit (CU−CX007)	AXD7023	AXD7023	Not used
	31	Remote control unit (CU−CX006)	Not used	Not used	AXD7022
	32	Battery cover	*1	*1	AZA7028
NSP	33	Alkaline (LR03, AAA)	AEX1006	AEX1006	Not used
NSP	33	Battery (R6P, AA)	Not used	Not used	AEX−010

Note *1 : Refer to "1.8 PARTS LIST FOR REMOTE CONTROL UNIT (CU-CX007)".

(2) PARTS LIST FOR CX-770S/ZU

Mark	No.	Description	Parts No.
NSP	1	CHASSIS(MET)	ANA7012
	2	INSULATOR	PNW1912
	3	INSULATOR ASSY	DXA1490
NSP	4	PCB MOULD	AMR1525
	5	REAR PANEL	ANC7130
	6	GEQ ASSY	AWZ7291
	7	PCB SUPPORT	AEC1581
	8	CORD WITH PLUG	ADE7002
	9	FM/AM TUNER MODULE	AXQ1012
	10	DOL. PRO. MOD. ASSY	AXQ1021
	11	VR ASSY	AWZ7292
	12	FRONT PANEL	AMB7094
	13	FUNCTION BUTTON	AAD7059
	14	TUNER BUTTON	AAD7061
	15	GEQ. BUTTON	AAD7060
	16	POWER BUTTON	AAD7062
	17	BASS BUTTON	AAD7063
	18	DISPLAY ASSY	AWZ7290
	19	FLEXIBLE CABLE	ADD1099
	20	VOL. KNOB	AAB7025
	21	VOL. KNOB LENZ	AAK7074
	22	BASS LEV. KNOB	AAB7024
	23	DISPLAY PANEL	AAK7073
	24	ROUND KNOB	AAB2226
	25	NAME PLATE	PAM1608
	26	BONNET CASE	ANE7032
	27	SCREW	ABA1018
	28	SCREW	BBZ30P080FZK
	29	SCREW	BPZ26P080FMC
	30	SCREW	BBT30P080FZK
	31	REMOTE CONTROL UNIT (CU-CX007)	AXD7023
	32	.....	
NSP	33	ALKALINE (LR03, AAA)	AEX1006
	34	LOOP ANTENNA	ATB1012
	35	FM ANTENNA	ADH1017
	36	SIDE PAD NO.1	AHA7022
	37	SIDE PAD NO.2	AHA7023
	38	PACKING CASE	AHD7061
NSP	39	LITERATURE BAG	AHG−117
	40	PACKING SHEET	AHG7008
	41	SCREW	ABA−222
	42	SCREW	VPZ30P080FZK

1.10 PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	→ *56×10¹* → *561*	·····	*RD1/8PM 5 6 1 J*
47kΩ	→ *47×10³* → *473*	·····	*RD1/4PS 4 7 3 J*
0.5Ω	→ *0R5*	·····	*RN2H 0 R 5 K*
1Ω	→ *010*	·····	*RS1P 0 1 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	→ *562×10¹* → *5621*	·····	*RN1/4PC 5 6 2 1 F*

Mark	No.	Description	Parts No.
LIST OF ASSEMBLIES			
NSP	FUKUGOU ASSY		AWM7097
	├─ DISPLAY ASSY		AWZ7290
	├─ GEQ ASSY		AWZ7291
	└─ VR ASSY		AWZ7292
	FM/AM TUNER MODULE		AXQ1012
	DOL.PRO.MOD. ASSY		AXQ1021
DISPLAY ASSY			
SEMICONDUCTORS			
	IC301		PDG123A
	IC302		XRA3826S
	Q301,Q305,Q306,Q320		2SC2458
	Q375		XDA124ES
	Q303		XDA143ES
	Q302,Q372,Q374		XDC124ES
	Q304,Q371		XDC143ES
	D307,D371		AEL1065
	D314		AEL1084
	D301,D302,D305,D306		HSS104−02
	D309,D310,D331−D336		HSS104−02
	D372−D384		HSS104−02
COILS AND FILTERS			
	L302		ATX1008
	L301		LAU220J
SWITCHES AND RELAYS			
	S301−S321		ASG1034
CAPACITORS			
	C303		ACH1246
	C307,C315		CCCSL101J50
	C301		CEAS010M50
	C312,C332		CEAS100M50
	C305,C314		CEAS221M10
	C371		CEASR47M50
	C331,C333		CKCYF103Z50
	C311		CKCYF223Z50
	C306,C320−C322		CKCYF473Z50
	C313		CKCYX104M25
	C302,C304		CKPUYF473Z16
RESISTORS			
	R321		RA10S104J
	R322		RA12S104J
	R320		RA8S104J
	R323		RA9S104J
	R380,R387,R390,R397		RD1/4PM221J
	R373		RD1/4PM270J
	VR301	(100kΩB)	ACS1102
	VR302	(10kΩB)	ACS1104
		Other Resistors	RD1/8PM□□□J
OTHERS			
	V301	FL TUBE	AAV7007
	CN301	40P SOCKET	AKP1085
	X301	CERAMIC RESONATOR(8.00MHz)	ASS1015
		REMOTE RECEIVER UNIT	AXX1023
GEQ ASSY			
SEMICONDUCTORS			
	IC551,IC552		LA3607
	IC553		LC7522
	IC502		MC14052BCP
	IC504,IC505		MC14066BCP
	IC501,IC503		NJM4558DXP
	Q652		2SA1515
	Q670		2SB1274
	Q671,Q672		2SC2878
	Q651		2SC3377
	Q501,Q502,Q504−Q507,Q673		XDA124ES
	Q503		XDC124ES
	D501,D601−D604,D660,D661		HSS104−02
	D672		HSS104−02
	D680		RD3.3ESB2
	D673		RD36ESB3
	D679		RD4.3ESB3
	D651,D652		RD5.6ESB2
	D670,D671		S568G

Mark	No.	Description	Parts No.
COILS AND FILTERS			
	L651,L652		LAU470J
CAPACITORS			
	C602		CEAS010M50
	C519,C520		CEAS100M50
	C565,C566		CEAS101M10
	C676		CEAS101M50
	C671		CEAS101M63
	C674,C675		CEAS102M50
	C513,C514		CEAS220M16
	C677,C678		CEAS220M50
	C670		CEAS221M63
	C561－C564		CEAS2R2M50
	C507,C508		CEAS330M50
	C515,C516		CEAS470M16
	C672,C673		CEAS470M50
	C567,C568,C573,C574		CEASR15M50
	C569,C570		CEASR47M50
	C587,C588		CEEA100M50
	C659		CFTXA184J50
	C575,C576,C581,C582		CFTXA273J50
	C571,C572,C577,C578		CFTXA683J50
	C551,C552,C557,C558		CGMYB182M50
	C579,C580,C585,C586		CGMYX103M16
	C553,C554,C583,C584		CGMYX472M25
	C651,C652		CKCYB102K50
	C490,C491		CKCYB103K50
	C509,C510		CKCYB152K50
	C559,C560		CKCYB331K50
	C511,C512		CKCYB562K50
	C518,C522		CKCYF223Z50
	C517,C521		CKCYF473Z50
	C555,C556		CKMYB681K50
	C655－C658,C660		CKPUYF473Z16
RESISTORS			
	R671		RD1/2PM622J
	R557,R558		RD1/4PM101J
	R670		RD1/4PM4R7J
	R679		RFA1/4PS100J
	R661,R662		RFA1/4PS4R7J
	R673,R674		RS1LMF470J
		Other Resistors	RD1/8PM□□□J
OTHERS			
		PIN JACK 6P (TAPE, LD/VCR)	AKB1121
		PIN JACK 4P (PHONO, CD)	AKB1124
	CN8209	JACK 2P (CONTROL)	AKN－209
		JACK (REMOTE IN)	AKN1020
	CN501	40P SOCKET	AKP1085
	CN504	CONNECTOR 19P	AKP7002

VR ASSY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC431,IC432		NJM4558DXP
	IC403		TA8409S
	IC402,IC481		UPC4570C
	IC401		M5220P
	Q450,Q451		2SC2458
	Q402,Q403,Q405,Q406,Q432		2SC2878
	Q431		XDA124ES
	Q433		XDC124ES
	D401,D402		HSS104－02
COILS AND FILTERS			
	L401		LAU221K
CAPACITORS			
	C439		CCCCH101J50
	C492,C493		CCCSL220J50
	C413,C414		CCDSL470J50
	C403,C404,C440,C442,C444,C457,C458		CEAS100M50
	C453,C454,C480		CEAS100M50
	C431,C432		CEAS101M10
	C472		CEAS101M25
	C443		CEAS220M16
	C437,C438		CEAS3R3M50
	C445		CEASR15M50
	C407,C408,C461,C462		CEYA100M50
	C435,C436		CKCYB102K50
	C411,C412,C459,C460		CKCYB103K50
	C441		CKCYB222K50
	C455,C456		CKCYF223Z50
	C309,C310		CKCYX103M25
	C473		CKCYX104M25
	C433,C434		CKCYX683M25
RESISTORS			
	VR401		ACX7001
		Other Resistors	RD1/8PM□□□J

FM/AM TUNER MODULE

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC6201		LA1836M
	IC6202		LM7001J
	Q6102		2SC2223
	Q6203		2SC2235
	Q6202		2SC2712
	Q6103,Q6214		2SC2714
	Q6201		2SK208
	Q6104		2SK302
	Q6101		3SK194
	Q6204		XDA124EK
	Q6217		XDC124EK
	D6101,D6102		1T33
COILS AND FILTERS			
	L6104		ATC1003
	L6101		ATC1020
	L6102		ATC1021
	T6101		ATE－063
	L6207	(10.7MHz)	ATE1013
	F6203,F6204		ATF－119
	F6101		ATF－155
	F6202		ATF1155
	L6103		ATH1043
	L6202,L6203,L6208		LCTA2R2J3225

Mark	No.	Description	Parts No.
CAPACITORS			
	C6202,C6234,C6236	(1μF/16V)	ACG1051
	C6235	(0.47μF/25V)	ACG1052
	C6107		CCSCH010C50
	C6229		CCSCH821J50
	C6110		CCSQCH020C50
	C6101		CCSQCH050C50
	C6108,C6203,C6268		CCSQCH101J50
	C6111,C6116,C6208,C6221,C6222		CCSQCH150J50
	C6115		CCSQCH330J50
	C6114		CCSQRH080D50
	C6113		CCSQRH180J50
	C6105		CCSQTH150J50
	C6261		CEAS010M50
	C6224,C6246,C6262		CEAS100M50
	C6216,C6217		CEAS330M16
	C6231,C6233		CEAS3R3M50
	C6219		CEAS470M10
	C6243－C6245		CEAS470M16
	C6227		CEAS470M25
	C6238		CEJA100M16
	C6249,C6250		CEJA4R7M35
	C6215		CFTXA103J50
	C6214		CFTXA224J50
	C6103,C6106,C6112,C6204		CKSQYB102K50
	C6102,C6109,C6117,C6210,C6264		CKSQYB103K50
	C6213		CKSQYB223K50
	C6230		CKSQYB333K50
	C6228,C6252		CKSQYB472K50
	C6209,C6237,C6265,C6267		CKSQYB473K50
	C6212,C6218		CKSQYF103Z50
	C6220,C6226,C6239,C6242,C6255		CKSQYF223Z50
	C6225,C6241,C6266		CKSQYF473Z50
	C6232		CKSYB333K50
	C6251		CKSYB472K50
	C6223		CKSYF103Z50
	C6263		CKSYF473Z50
RESISTORS			
	R6299,R6300		RD1/8PM102J
	R6113,R6116,R6118,R6268－R6271		RS1/8S000J
	R6275,R6276,R6278,R6283,R6284		RS1/8S000J
	R6290,R6293,R6294,R6297		RS1/8S000J
	R6243,R6244		RS1/8S101J
	R6211		RS1/8S103J
	R6237		RS1/8S182J
	R6209		RS1/8S221J
	R6239		RS1/8S332J
	R6101		RS1/8S470J
	VR6201	(10kΩ)	ACP1056
	VR6202		VRTB6VS223
		Other Resistors	RS1/10S□□□J
OTHERS			
	BN6201	TERMINAL 4P	AKA1016
	X6203	CRYSTAL RESONATOR(7.200MHz)	ASS1042
	X6201	CRYSTAL RESONATOR(F=456kHz)	ASS1066
	X6202	CERAMIC RESONATOR(F=450kHz)	ATF1027

Mark	No.	Description	Parts No.
		AM FM TUNING BLOCK	AXX1041

DOL.PRO.MOD. ASSY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC1804		LA2785
	IC1803		LV1010N
	IC1801,IC1802		NJM4558M－D
	Q1801		2SD468
	D1802－D1810		1SS226
	D1801		RD10MB
CAPACITORS			
	C1864,C1865	(100μF/25V)	ACH1262
	C1852,C1853	(10μF/50V)	ACH1270
	C1801－C1803		CCSQCH101J50
	C1842,C1861		CEANL3R3M50
	C1838,C1840,C1857,C1859		CEANL4R7M50
	C1823,C1867－C1869		CEAS010M50
	C1806,C1809,C1812,C1815,C1826		CEAS100M50
	C1831－C1833,C1847－C1850		CEAS100M50
	C1805,C1808,C1811,C1814		CEAS220M16
	C1819		CEAS221M10
	C1817,C1824,C1846,C1851		CEAS221M16
	C1804,C1807,C1810,C1813,C1825		CEAS2R2M50
	C1834		CEAS470M10
	C1816		CEAS470M16
	C1841,C1860		CEASR15M50
	C1837,C1839,C1856,C1858		CEASR47M50
	C1835,C1836,C1854,C1855		CFTYA104J50
	C1843,C1862		CFTYA154J50
	C1820,C1822		CFTYA333J50
	C1863		CFTYA474J50
	C1818,C1866,C1870		CKSQYF104Z50
	C1821		CQMA152J50
	C1844		CQMA223J50
	C1845		CQMA473J50
	C1830		CQMA681J50
RESISTORS			
		All Resistors	RS1/10S□□□J
OTHERS			
	X1801	CERAMIC RESONATOR(F=8.00MHz)	ASS1015
	CN1801	SOCKET 15P	KP20OIB15L

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The Art of Entertainment

Service Manual

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STEREO TUNER CONTROL AMPLIFIER

CX-770S

CX-770

CHAPTER 2

CONTENTS

CHAPTER 2

2.1 PACKING AND EXPLODED VIEWS ··· 2-3
2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS ····· 2-6
2.3 BLOCK DIAGRAM····· 2-33
2.4 REMOTE CONTROL UNIT (CU-CX007) ····· 2-35

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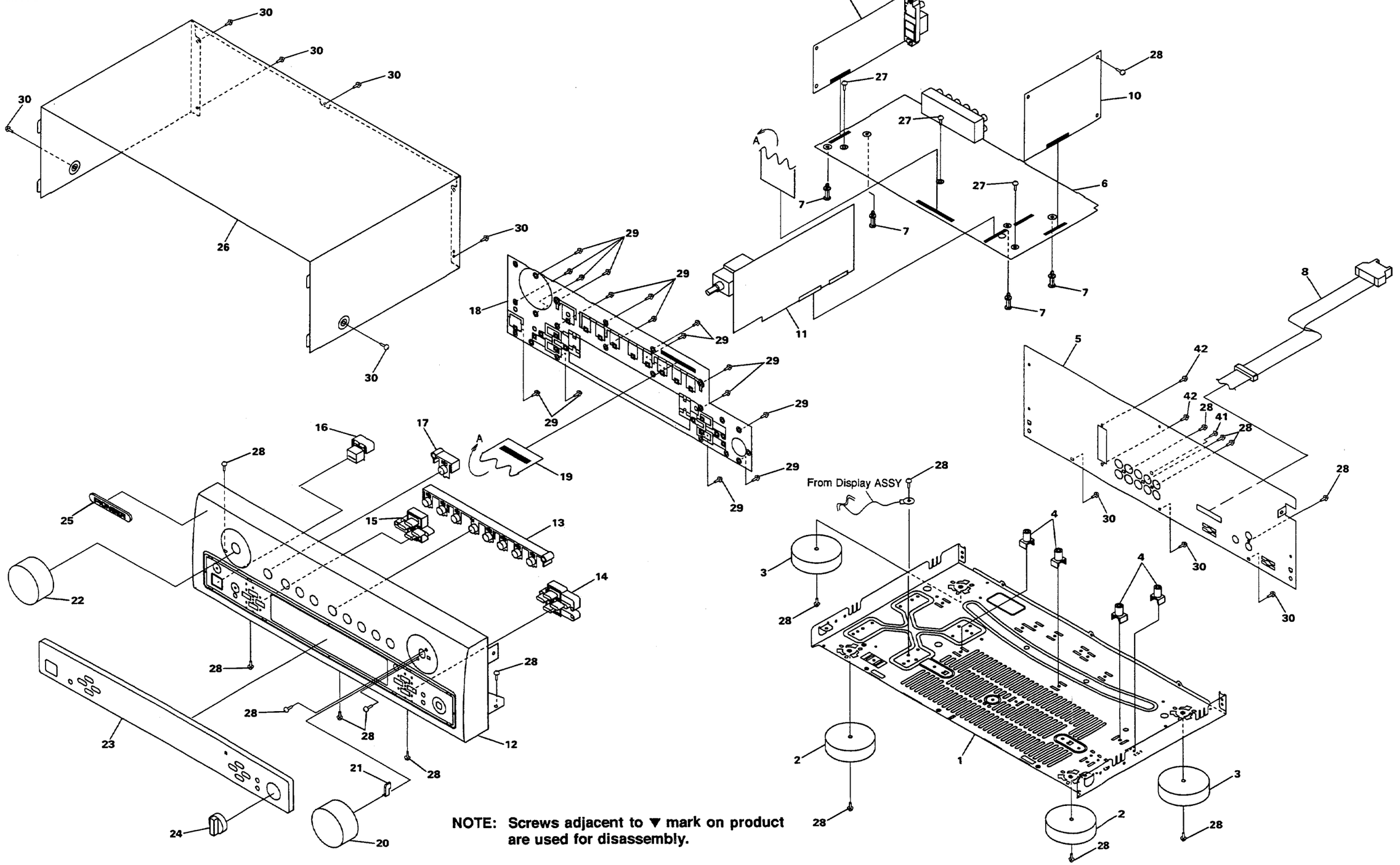
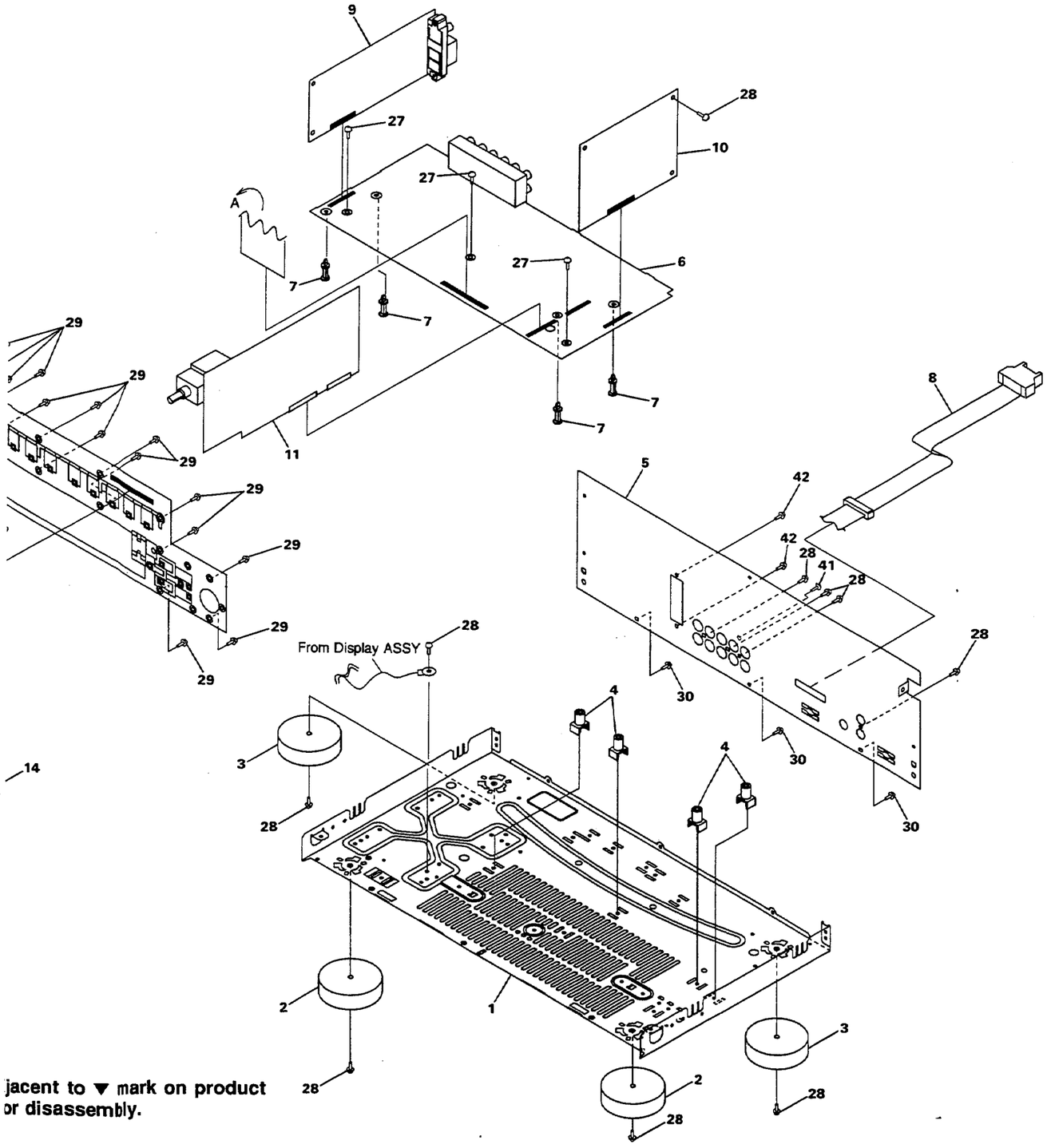
T-FFF JUNE 1994 Printed in Japan

2.1 PACKING AND EXPLODED VIEWS

● **EXTERIOR**

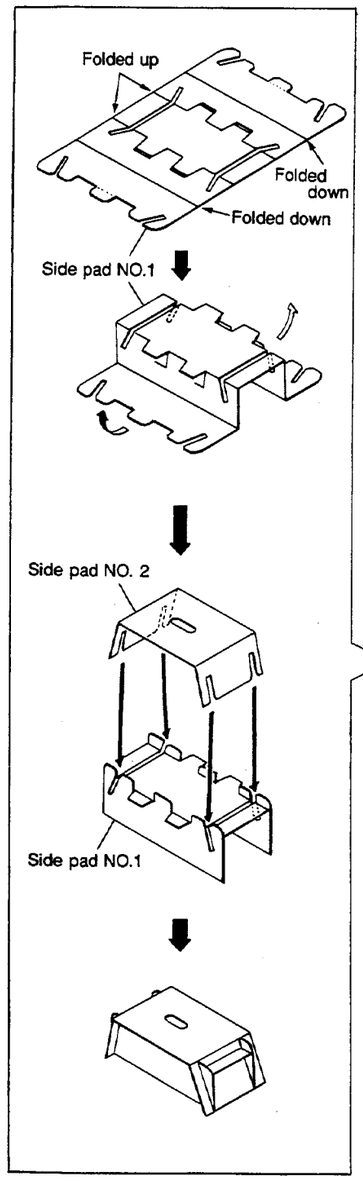


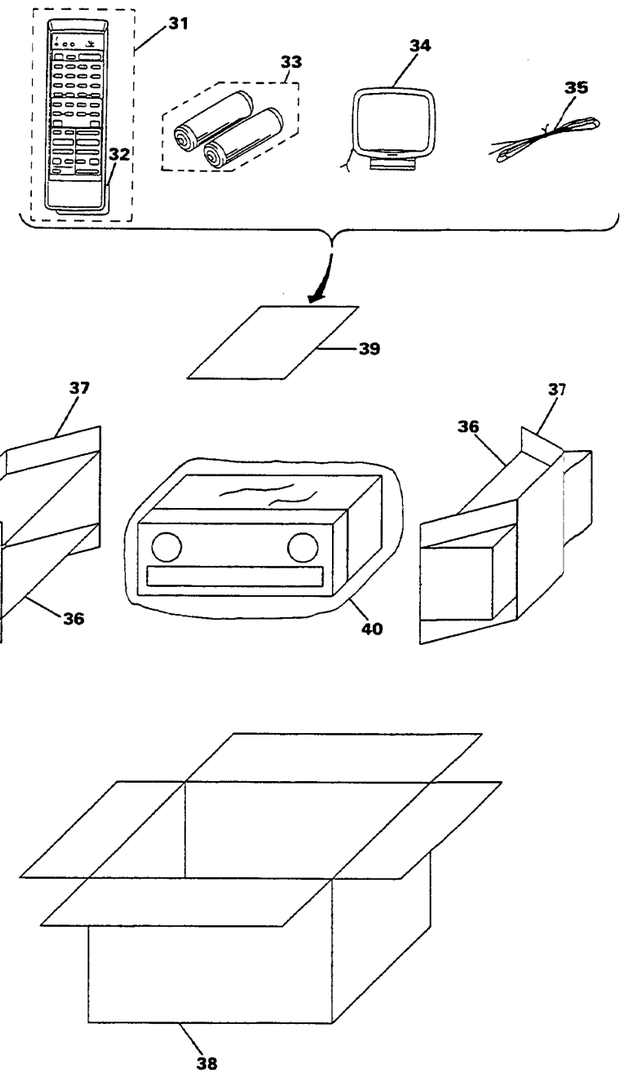
NOTE: Screws adjacent to ▼ mark on product are used for disassembly.



jacent to ▼ mark on product
or disassembly.

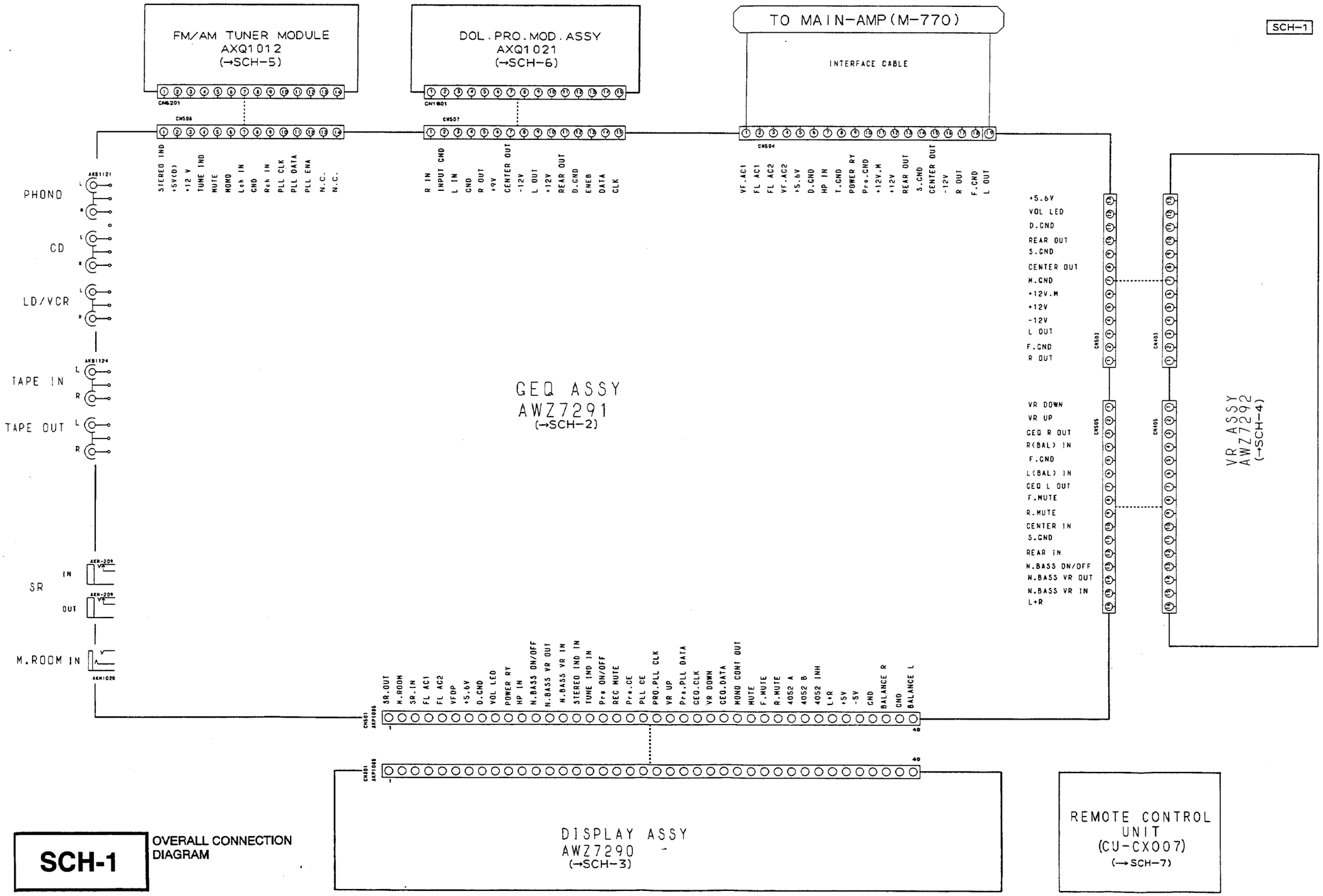
● PACKING





2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS

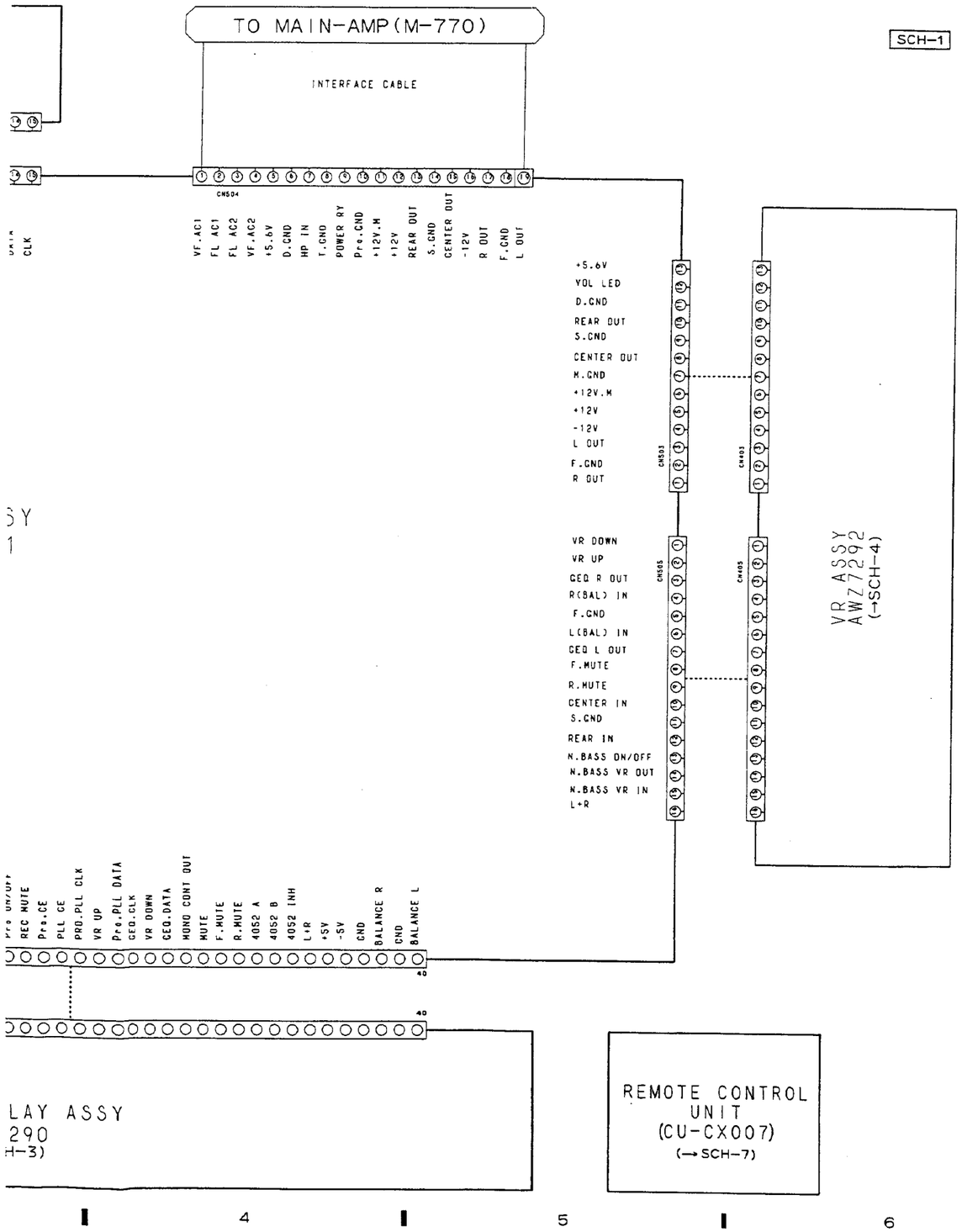
2.2.1 OVERALL CONNECTION DIAGRAM



SCH-1 OVERALL CONNECTION DIAGRAM

NOTE FOR SCH

1. **When orderir "PARTS LIST PARTS LIST".**
2. **Since these are values of some ment.**
3. **RESISTORS:** Unit: k:kΩ, M:MΩ Rated power: 1 noted. Tolerance: (F): ±1 less otherwise no
4. **CAPACITORS:** Unit: p:pF or μF Ratings: capacito Rated voltage: 5(
5. **COILS:** Unit: m:mH or μ
6. **VOLTAGE AND C** ▭ or ← V : DC volta ⇦ mA or ← mA DC curre
7. **OTHERS:**
   - ⊘ or ⓪ : Adjus
   - ◄ : Meas
   - The ⚠ mark fo portance of the placing, be sur
8. **SCH—□ ON THE**
   - SCH—□ indica gram. (SCH sta
9. **SWITCHES** (Unc DISPLAY ASSY
   - S301 : ST/FRE
   - S302 : LD/VCI
   - S303 : MEMO
   - S304 : FREQL
   - S305 : DOLBY
   - S306 : TUNIN
   - S307 : TUNEF
   - S308 : MONO
   - S309 : EQUAL
   - S310 : CENTE
   - S311 : FM/AM
   - S312 : TAPE
   - S313 : CD
   - S314 : DEMO
   - S315 : EQUAL
   - S316 : DELAY
   - S317 : TUNIN
   - S318 : PHONO
   - S319 : POWE
   - S320 : FREQL
   - S321 : POWE



NOTE FOR SCHEMATIC DIAGRAMS (Type 2A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ or ⊢ V :
   DC voltage (V) at no input signal unless otherwise noted.
   ⇦ mA or ⊢ mA :
   DC current at no input signal unless otherwise noted.
7. **OTHERS:**
   - ⊘ or ⓪ : Adjusting point.
   - ◄ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH—□ ON THE SCHEMATIC DIAGRAM:**
   - SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):
   DISPLAY ASSY
   S301 : ST/FREQ
   S302 : LD/VCR
   S303 : MEMORY
   S304 : FREQUENCY(◁)
   S305 : DOLBY MODE
   S306 : TUNING (—)
   S307 : TUNER
   S308 : MONO
   S309 : EQUALIZING (—)
   S310 : CENTER
   S311 : FM/AM
   S312 : TAPE
   S313 : CD
   S314 : DEMO
   S315 : EQUALIZING (+)
   S316 : DELAY TIME
   S317 : TUNING (+)
   S318 : PHONO
   S319 : POWER (STANDBY/ON)
   S320 : FREQUENCY(▷)
   S321 : POWER BASS

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
Q504 E ○ ○ ○ Q504	Q504 Q504	Transistor
D203 ○ D203	D203	Diode
C513 C513	C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ⓪ or ⊐ shows cathode side.
5. The capacitor terminal marked with ⓪ or ⊏ shows negative terminal.

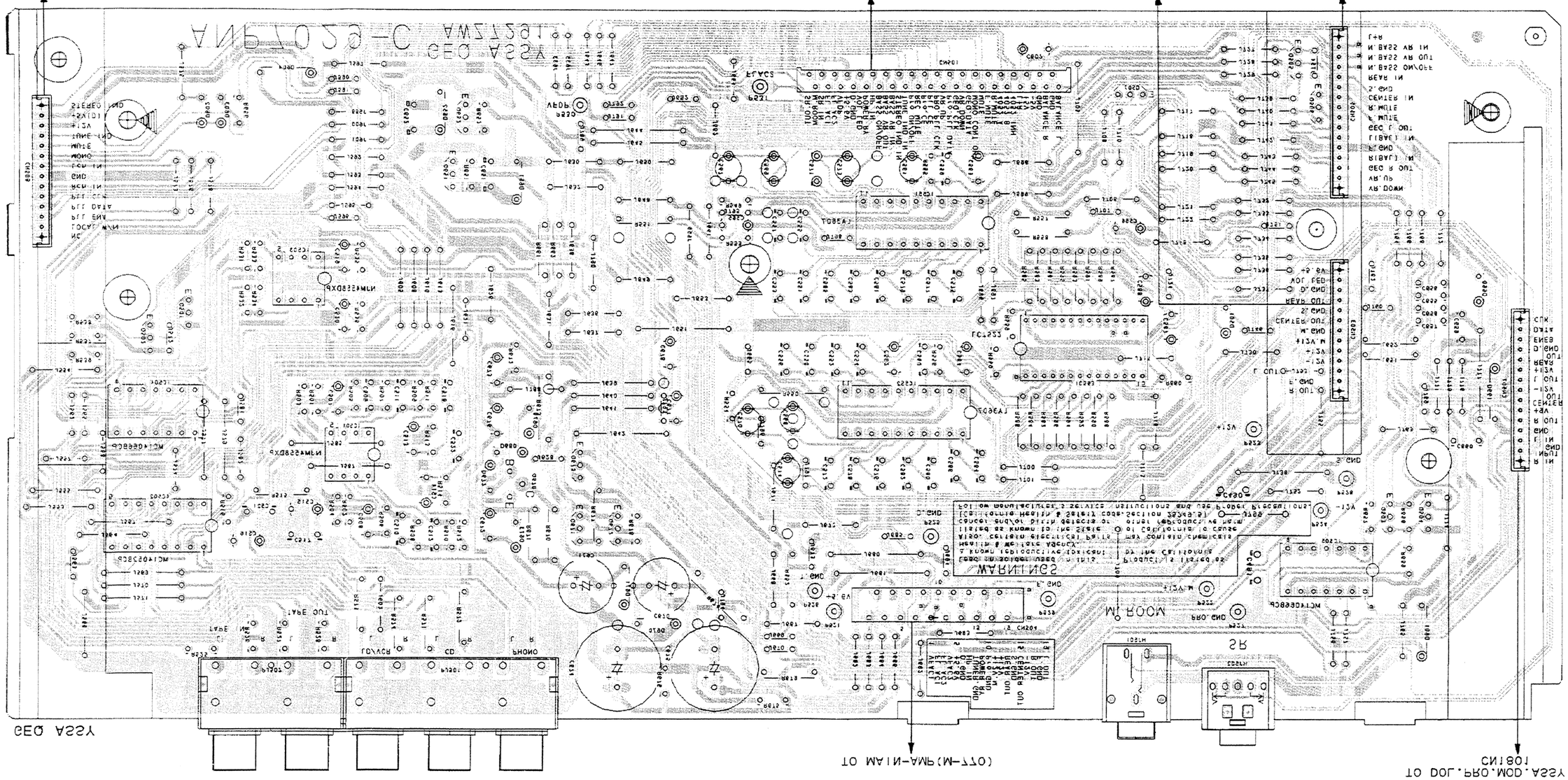
OVERALL CONNECTION DIAGRAM

SCH-1

5.5.5 GEQ ASSY

● This diagram is viewed from the foil side.

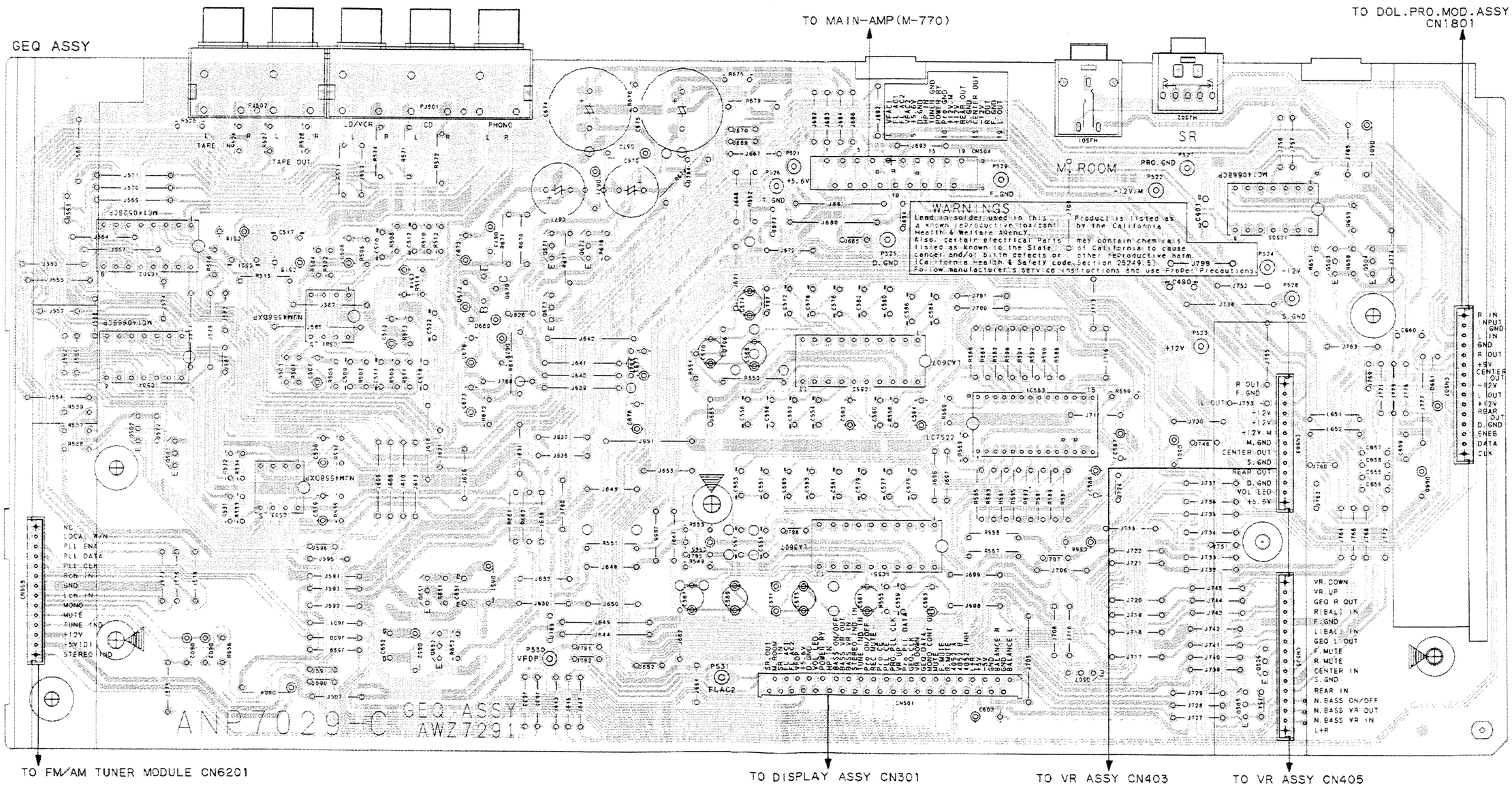
PCB-1



2.2.2 GEQ ASSY

● This diagram is viewed from the mounted parts side.

PCB-1


GEQ ASSY
TO MAIN-AMP(M-770)
TO DOL.PRO.MOD.ASSY CN1801
TAPE IN
TAPE OUT
LD/VCR
CD
PHONO
SR
M. ROOM
WARNINGS
Lead in solder used in this Product is listed as
A known reproductive toxicant by the California
Health & Welfare Agency.
Also, certain electrical Parts may contain chemicals
listed as known to the State of California to cause
cancer and/or birth defects or other reproductive harm.
(California Health & Safety Code Section 25249.5)
Follow manufacturer's service instructions and use Proper Precautions.
ANP7029-C GEQ ASSY
AWZ7291
TO FM/AM TUNER MODULE CN6201
TO DISPLAY ASSY CN301
TO VR ASSY CN403
TO VR ASSY CN405

IC502 IC504 Q502 Q501 | IC503 IC501 | Q651 Q670 Q652 | Q671 Q672 Q673 | IC551 IC552 | IC553 Q507 | Q505 IC505 Q503 Q504 Q506

TO FM/AM TUNER MODULE CN6201 (→SCH-5)

TO DOL.PRO.MOD.ASSY

IC501 : RIAA AMP

IC502 : INPUT SELECTOR

IC503 : BUFFER

IC504 : TAPE MONITOR ON/OFF & TAPE INPUT SELECTOR SW

Q501, Q502 : TAPE MONITOR ON/OFF

Q671, Q672 : FL AC ON/OFF

Q673 : FL ON/OFF DRIVE

D680 : RD3.3ES82
D679 : RD4.3ES83

Q670 : −32V REGULATOR

PHONO

CD

LD/VCR

TAPE IN

TAPE OUT

SR IN

SR OUT

M.ROOM

4052A

4052B

4052 INH

REC MUTE

DC−31.5V

AC14.8V

DC+12V

DC−28V+AC3.8V

DIODES

Other diodes (not noted) are HSS104-02

TO DISPLAY ASSY CN301 (→SCH-3)

SR.OUT
M.ROOM
SR.IN
FL AC1
FL AC2
VFDP
+5.6V
D.GND
VOL LED
POWER RY
HP IN
N.BASS ON/OFF
N.BASS VR OUT
N.BASS VR IN
STEREO IND IN
TUNE IND IN
Pro ON/OFF
REC MUTE
Pro.CE
PLL CE
PRO.PLL CLK
VR UP
Pro.PLL DATA
GEQ.CLK
VR DOWN
GEQ.DATA
MONO CONT OUT
MUTE
F.MUTE
R.MUTE
4052 A
4052 B
4052 INH

SCH-2 GEQ ASSY

TO FM/AM TUNER MODULE CN6201 (→SCH-5)

STEREO IND
+5V(D)
+12 V
TUNE IND
MUTE
MONO
Lch IN
GND
Rch IN
PLL CLK
PLL DATA
PLL ENA
N.C.
N.C.

CN508

TO DOL.PRO.MOD.ASSY CN1801 (→SCH-6)

R IN
INPUT GND
L IN
GND
R OUT
+9V
CENTER OUT
-12V
L OUT
+12V
REAR OUT
D.GND
ENEB
DATA
CLK

CN507

GEQ ASSY
AWZ7291

01:RIAA AMP

IC501
NJM4558DXP

IC551, IC552:
7 BAND GRAPHIC EQUALIZER

LA3607
IC551

LA3607
IC552

L IN

R IN

GEQ L

GEQ R

IC502:
INPUT
SELECTOR

IC502
MC14052BCP

4052A
4052B
4052 INH

IC503:BUFFER

IC503
NJM4558DXP

IC504
MC14066BCP

IC505:
PROLOGIC
ON/OFF
ANALOG
SW

IC505
MC14066BCP

4052 INH

REC MUTE

Q501
XDA124E3

Q502
XDA124E3

IC504:TAPE MONITOR ON/OFF
& TAPE INPUT SELECTOR SW

Q501, Q502:
TAPE MONITOR
ON/OFF

Q503
XDC124E3

Q504
XDA124E3

Q503, Q504:
PROLOGIC ON/OFF

Q651:+5V REGULATOR
Q652:-5V REGULATOR

Q670:-32V REGULATOR

AC14.8V

DC+12V

+5V

-5V

A(1:4)
B(1:4)
C(1:2)
D(1:4)
F(1:3)
SR(1:3)

P531 FLAC2
P530 VFDP

ON/OFF DRIVE

CN501
AKP104S

CN504

TO DISPLAY ASSY CN301 (→SCH-3)

SR.OUT
M.ROOM
SR.IN
FL AC1
FL AC2
VFDP
+5.6V
D.GND
VOL LED
POWER RY
HP IN
N.BASS ON/OFF
N.BASS VR OUT
N.BASS VR IN
STEREO IND IN
TUNE IND IN
Pro ON/OFF
REC MUTE
Pro.CE
PLL CE
PRO.PLL CLK
VR UP
Pro.PLL DATA
GEQ.CLK
VR DOWN
GEQ.DATA
MONO CONT OUT
MUTE
F.MUTE
R.MUTE
4052 A
4052 B
4052 INH
L+R
+5V
-5V
GND
BALANCE R
GND
BALANCE L

TO MAIN-AMP (M-770)

VF.AC1
FL AC1
FL AC2
VF.AC2
+5.6V
D.GND
HP IN
T.GND
POWER RY
Pro.GND
+12V.M
+12V
REAR OUT
S.GND
CENTER OUT
-12V
R OUT
F.GND
L OUT

TO VR ASSY

+5.6V
VOL LED
D.GND
REAR OUT
S.GND
CENTER OUT

6S104-02

3 4 5 6

ASSY CN1801 (→SCH-6)

SCH-2

➡:Lch signal route

GEQ ASSY
AWZ7291

IC551, IC552:
7 BAND GRAPHIC EQUALIZER

IC553:
ELECTRIC
VOLUME
for
GRAPHIC
EQUALIZER

IC505:
PROLOGIC
ON/OFF
ANALOG
SW

Q503, Q504:
PROLOGIC ON/OFF

Q507:
LEVEL
REVERSE

Q505, Q506:
MUTE DRIVE

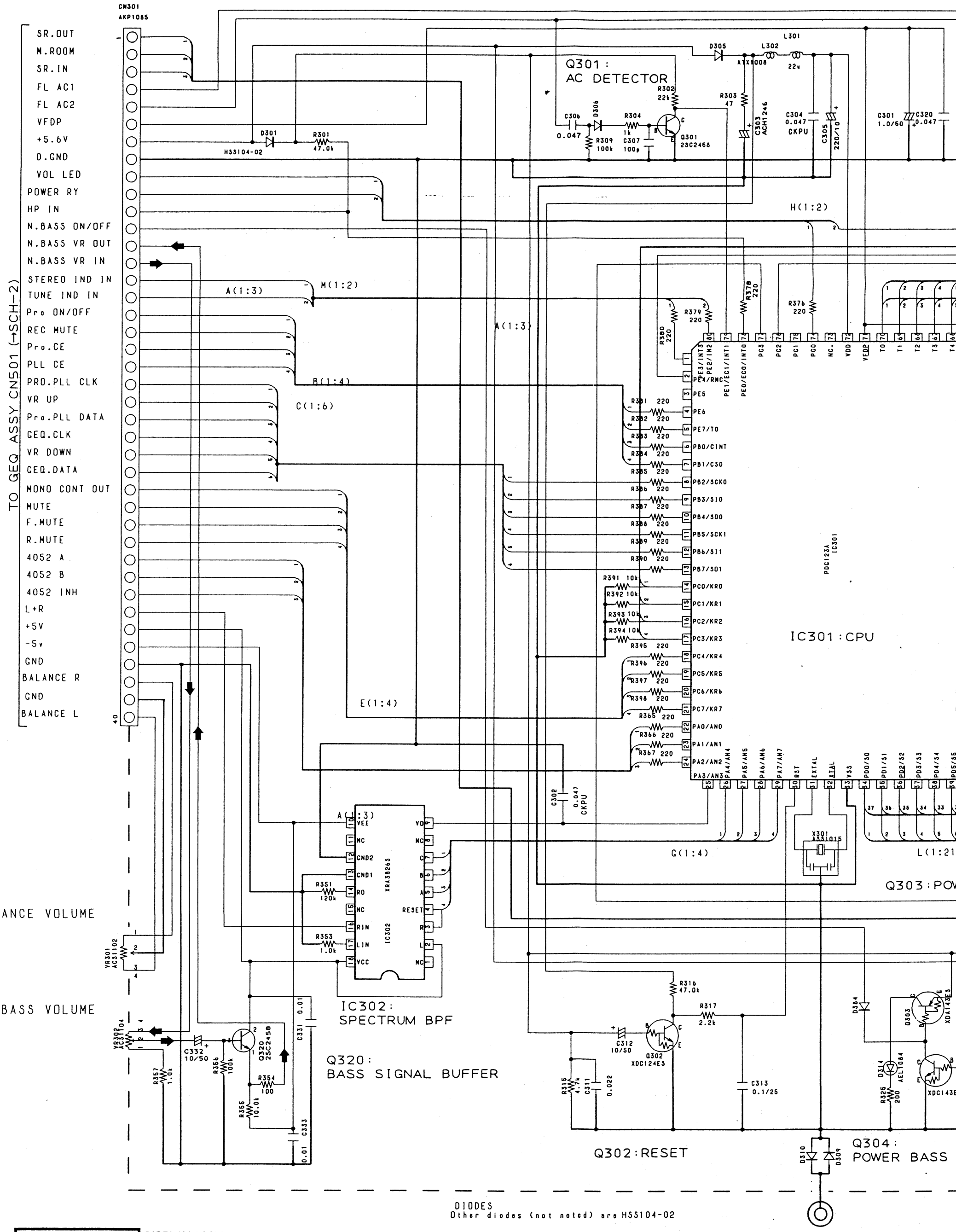
Q651 : +5V REGULATOR
Q652 : −5V REGULATOR

L IN
R IN
GEQ L
GEQ R
DATA CLOCK

TO MAIN−AMP (M−770)
TO VR ASSY CN403 (→SCH−4)
TO VR ASSY CN405 (→SCH−4)

GEQ ASSY

2.2.3 DISPLAY ASSY



SCH-3 DISPLAY ASSY

➡:Lch signal route

DISPLAY ASSY
AWZ7290

TUNING (+) S317 | PHONO S318 | POWER S319 | FREQ ▷ S320 | POWER BASS S321
FM/AM S311 | TAPE S312 | CD S313 | DEMO S314 | BALANCE (+) S315 | DELAY TIME S316
TUNING (-) S306 | TUNER S307 | MONO S308 | BALANCE (-) S309 | CENTER MODE S310
ST/FREQ S301 | LD/VCR S302 | MEMORY S303 | FREQ △ S304 | DOLBY MODE S305

R330 1.0k
R331 1.0k
R332 1.0k
R333 1.0k

D331 D332 D333 D334 D335 D336

L(1:6)

C320 0.047
C321 0.047
C322 0.047

K(1:16)

J(1:28)

R321 100.0k
R322 100.0k
R323 100.0k
R320 100.0k

R340 27.0k

D380 D381 D382 D383

V301 AAV7007

F1 F1 F1
16G 15G 14G 13G 12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 IC NP Fd Fd NP IC P11 P12 P13 P23 P22 P21 P20 P19 P18 P17 P16 P15 P14
F2 F2 F2

T1 T2 T3 T4 T5 T6 T7 T8/328 T9/327 T10/326 T11/325 T12/324 T13/323 T14/322 T15/321
320 S19 S18 S17 S16 PF7/S15 PF6/S14 PF5/S13 PF4/S12 PF3/S11 PF2/S10 PF1/S9 PF0/S8
PD2/32 PD3/33 PD4/34 PD5/35 PD6/36 PD7/37

L(1:21)

Q303:POWER BASS IND.

SR(1:3)
M.ROOM
SR IN
SR OUT

Q303 XDA143E3
Q304 XDC143E3
Q305 2SC2458
Q306 2SC2458
Q371 XDC143E3
Q372 XDC124E3
Q374 XDC124E3
Q375 XDA124E3

D302 D307 AEL1065 D371 AEL1065 D372 D373 D374 D375 D376 D377 D378 D379

R319 150
R326 3.3k
R306 2.2k
R305 1.5k
R308 4.7k
R307 4.7k
R371 150
R372 10.0k
R374 39.0k
R377 22.0k
R375 4.7k
R373 27 1/4W
C371 0.47/60
C314 220/10
C315 100p

AEL1084 200

Q305: STAND.BY

Q306:POWER ON/OFF DRIVE

Q371: M.ROOM

Q372: REMOTE CONTROL and MULTI ROOM SIGNAL ADD

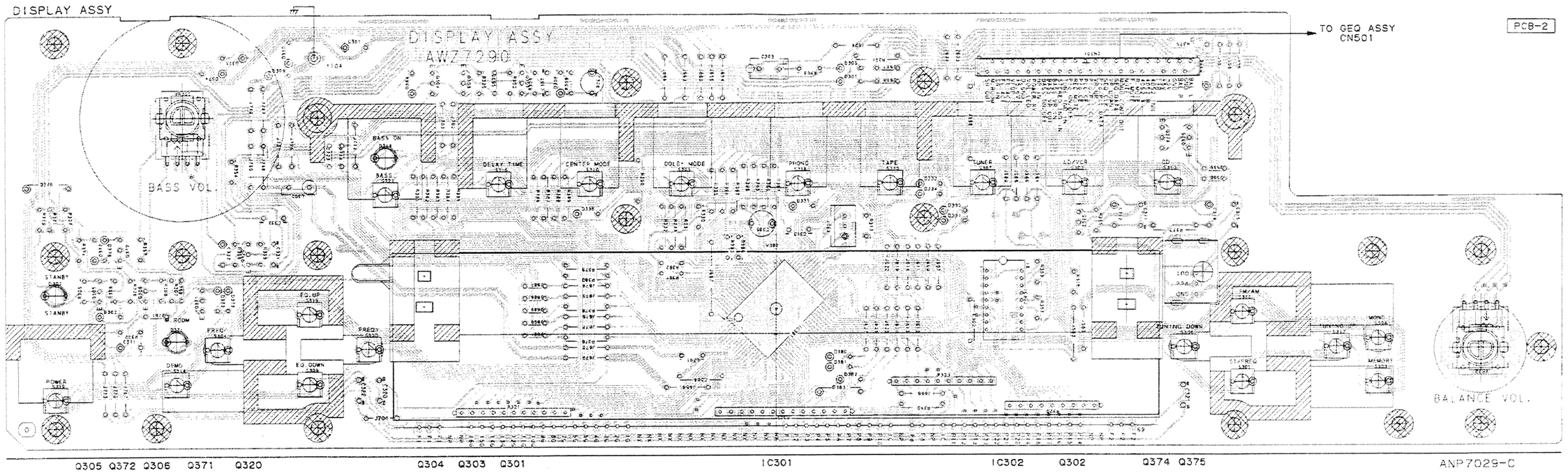
Q374, Q375: REMOTE CONTROL SIGNAL REVERSE

AXX1023 VCC OUT

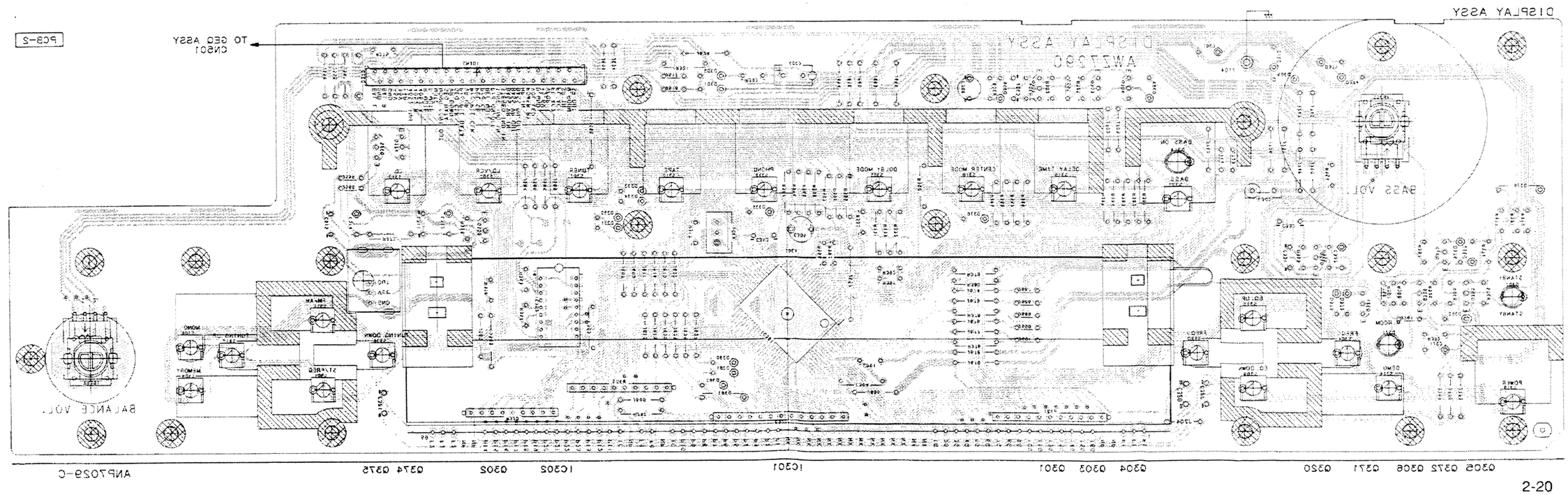
:ER BASS LED DRIVE

DISPLAY ASSY SCH-3

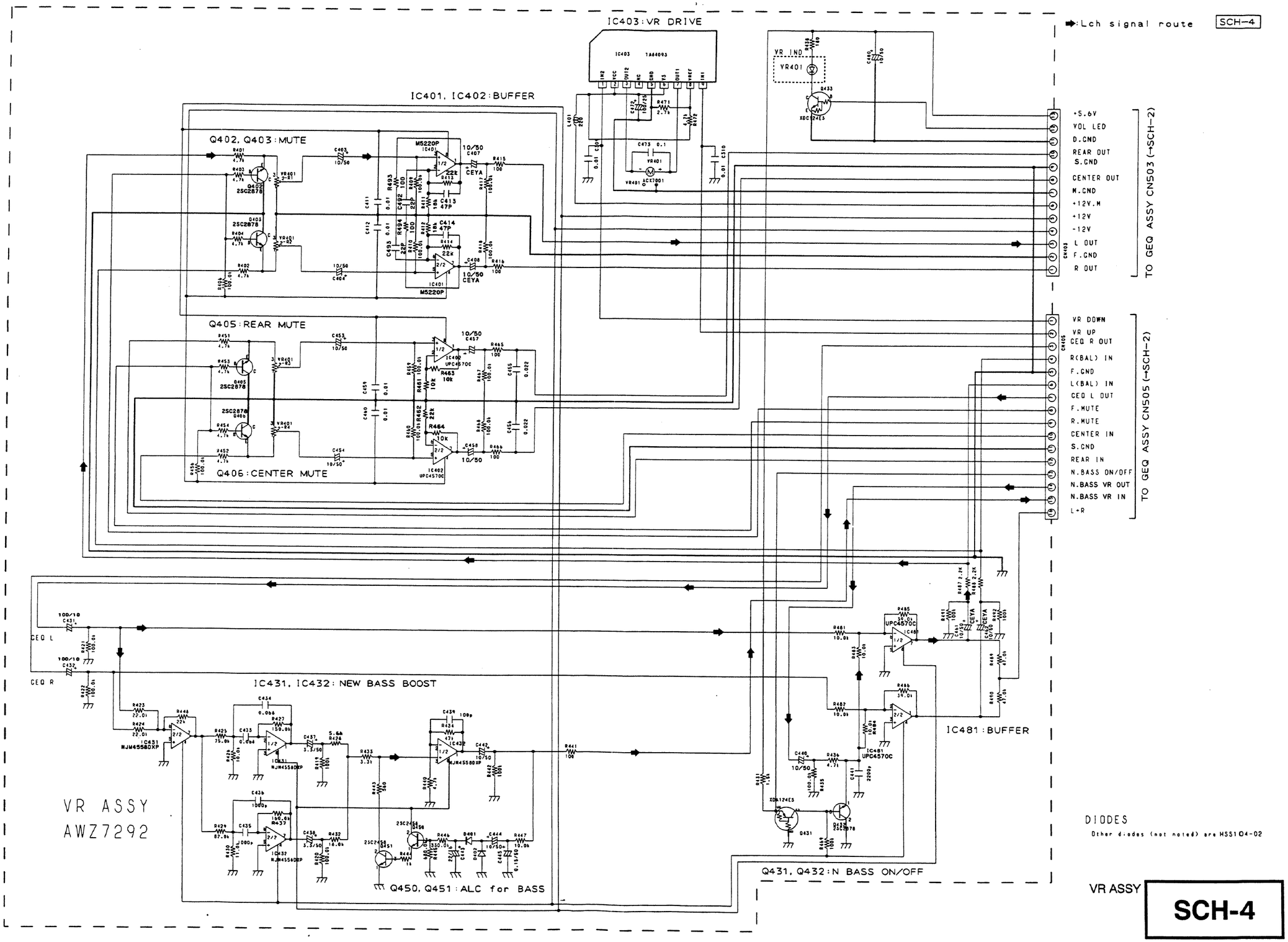
● This diagram is viewed from the mounted parts side.



● This diagram is viewed from the foil side.

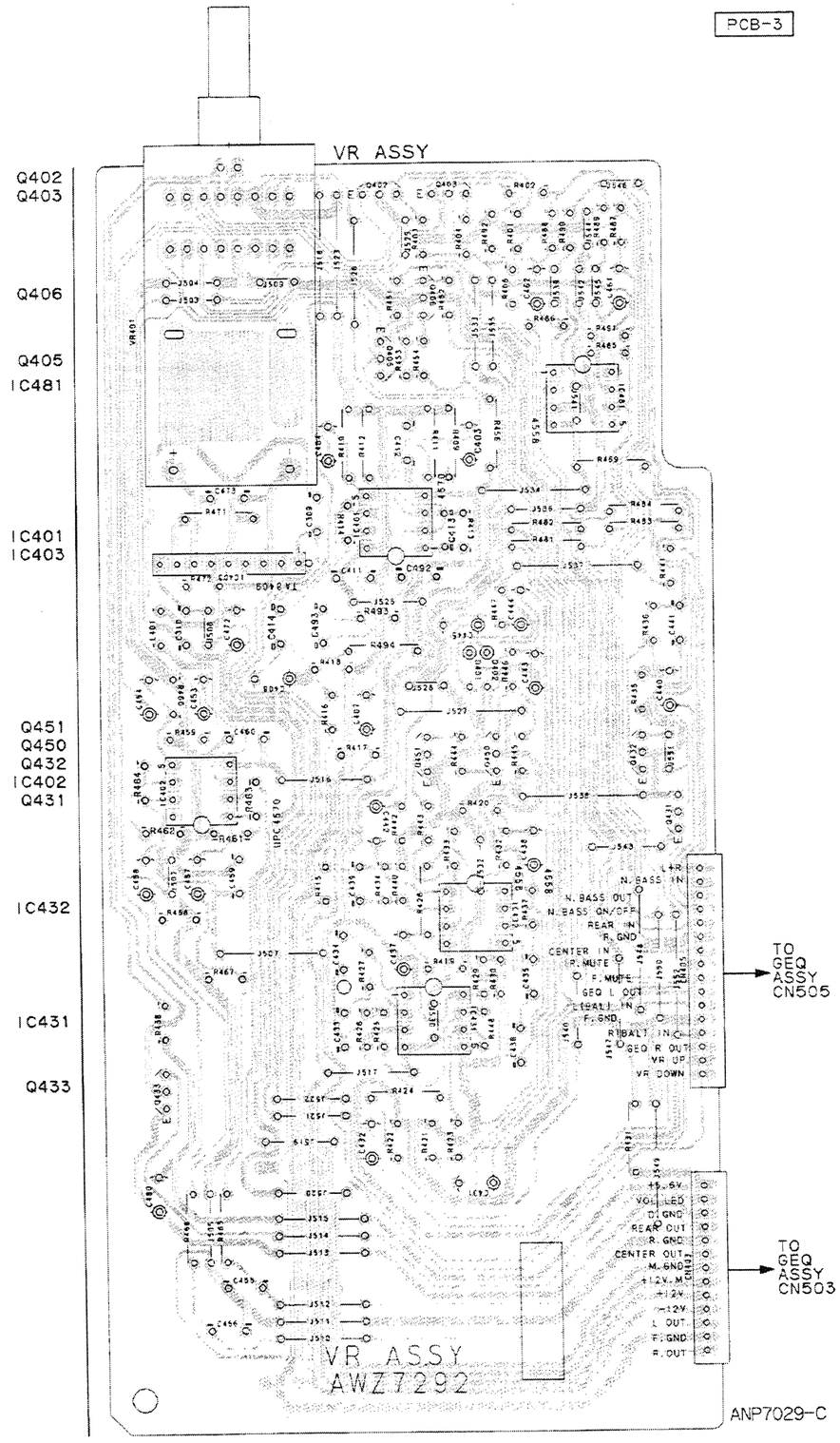


2.2.4 VR ASSY


IC403:VR DRIVE
IC401, IC402:BUFFER
Q402, Q403:MUTE
Q405:REAR MUTE
Q406:CENTER MUTE
IC431, IC432:NEW BASS BOOST
Q450, Q451:ALC for BASS
Q431, Q432:N BASS ON/OFF
IC481:BUFFER
VR ASSY
AWZ7292
:Lch signal route
SCH-4
TO GEQ ASSY CN503 (→SCH-2)
TO GEQ ASSY CN505 (→SCH-2)
+5.6V
VOL LED
D.GND
REAR OUT
S.GND
CENTER OUT
M.GND
+12V.M
+12V
-12V
L OUT
F.GND
R OUT
VR DOWN
VR UP
GEQ R OUT
R(BAL) IN
F.GND
L(BAL) IN
GEQ L OUT
F.MUTE
R.MUTE
CENTER IN
S.GND
REAR IN
N.BASS ON/OFF
N.BASS VR OUT
N.BASS VR IN
L+R
GEQ L
GEQ R
DIODES
Other diodes (not noted) are HSS104-02
VR ASSY
SCH-4

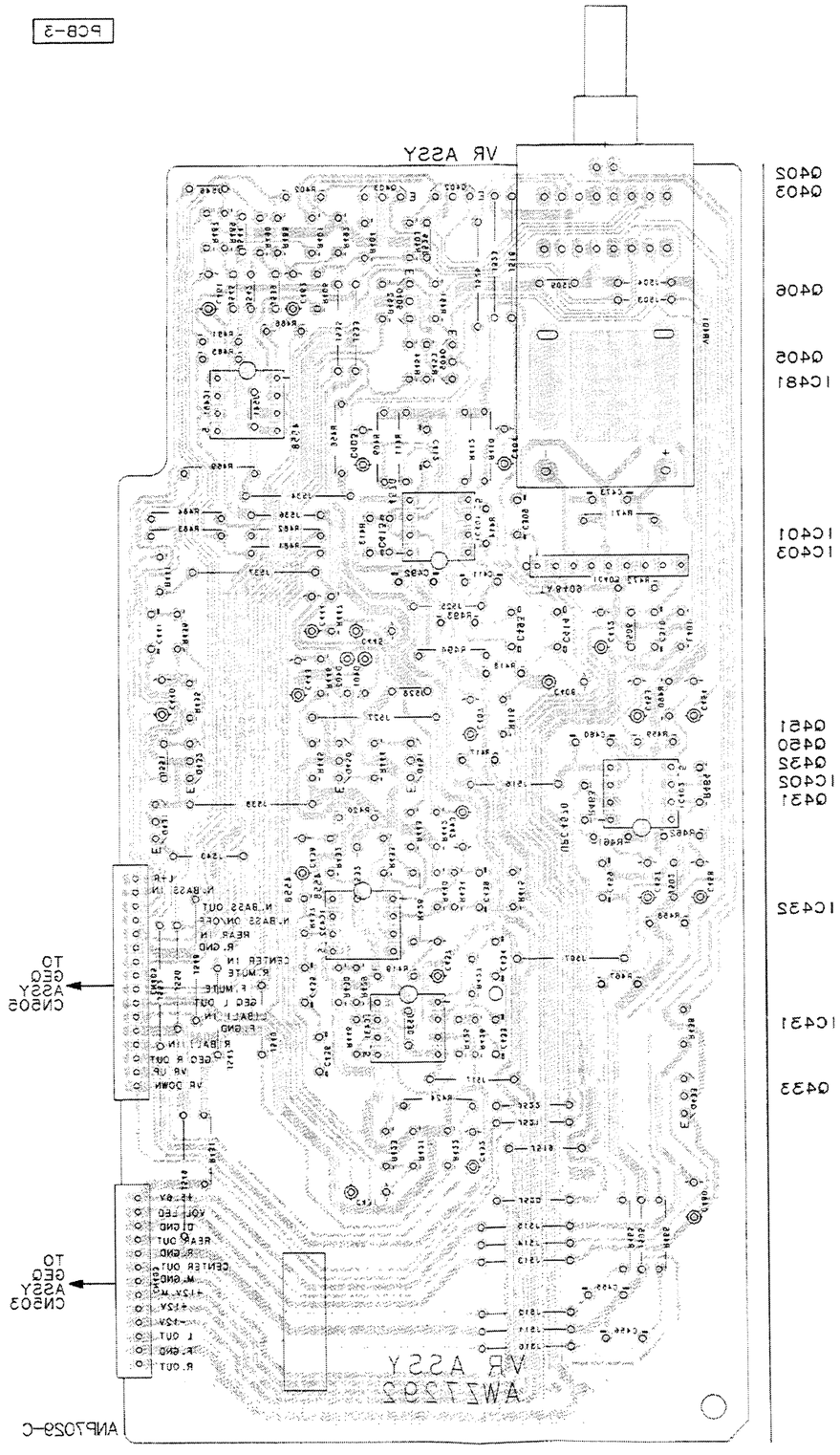
● This diagram is viewed from the mounted parts side.

PCB-3



● This diagram is viewed from the foil side.

PCB-3

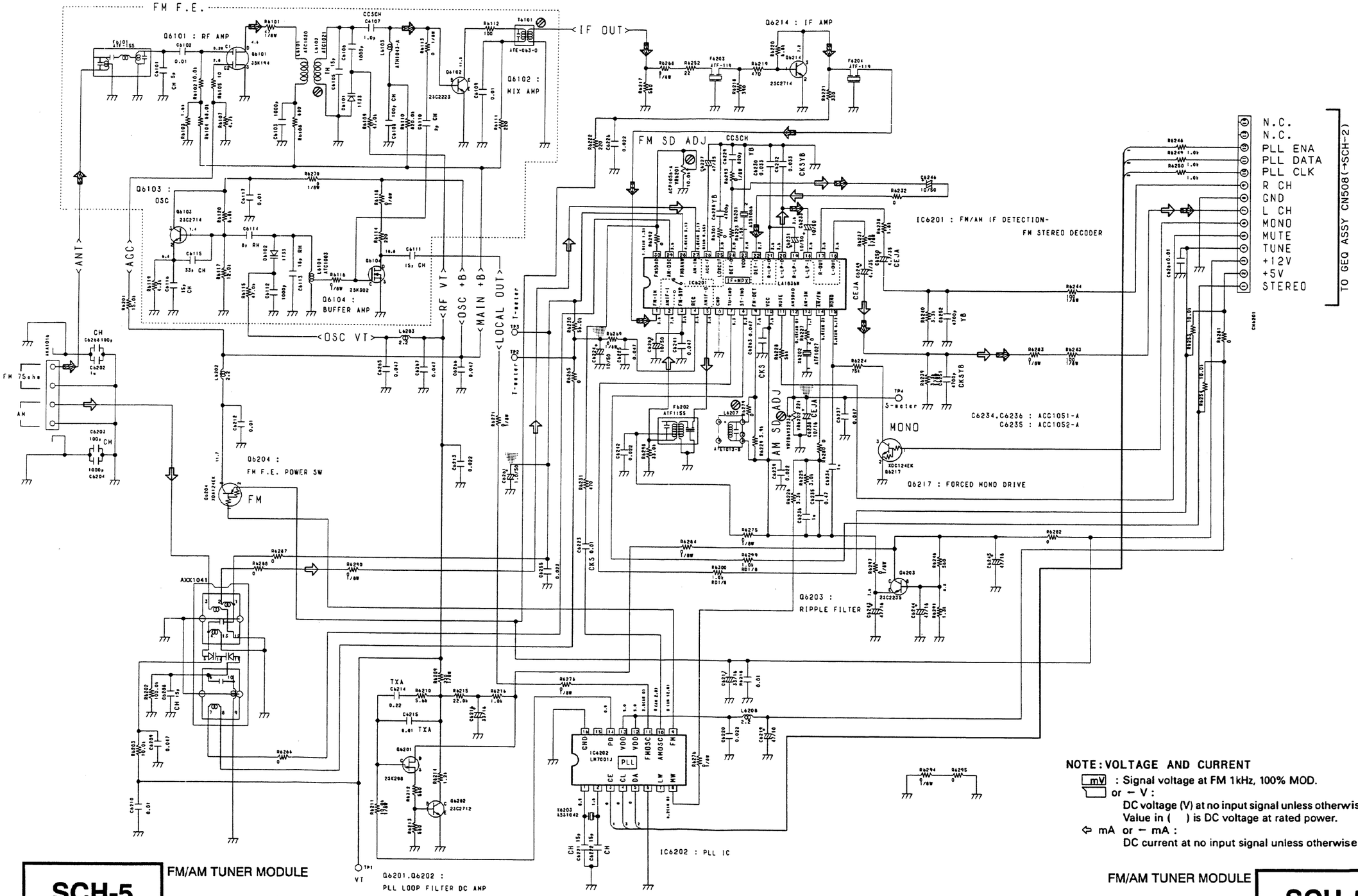


2.2.5 FM/AM TUNER MODULE

⇨:FM signal route
⇨:AM signal route

SCH-5

FM/AM TUNER MODULE
(AXQ1012)



NOTE: VOLTAGE AND CURRENT

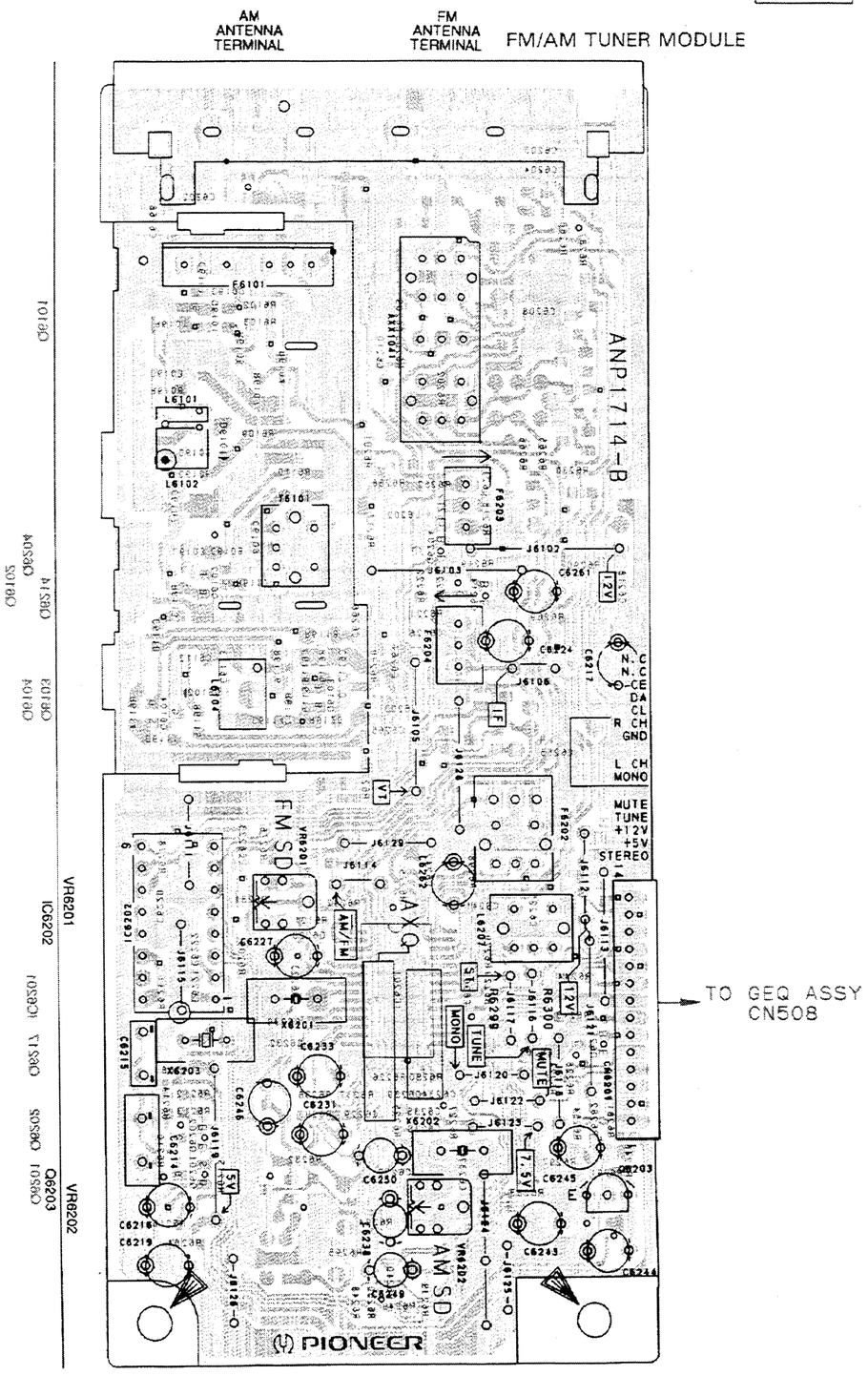
mV : Signal voltage at FM 1kHz, 100% MOD.
or ← V :
DC voltage (V) at no input signal unless otherwise noted.
Value in ( ) is DC voltage at rated power.
⇦ mA or ← mA :
DC current at no input signal unless otherwise noted.

FM/AM TUNER MODULE **SCH-5**

FM/AM TUNER MODULE **SCH-5**

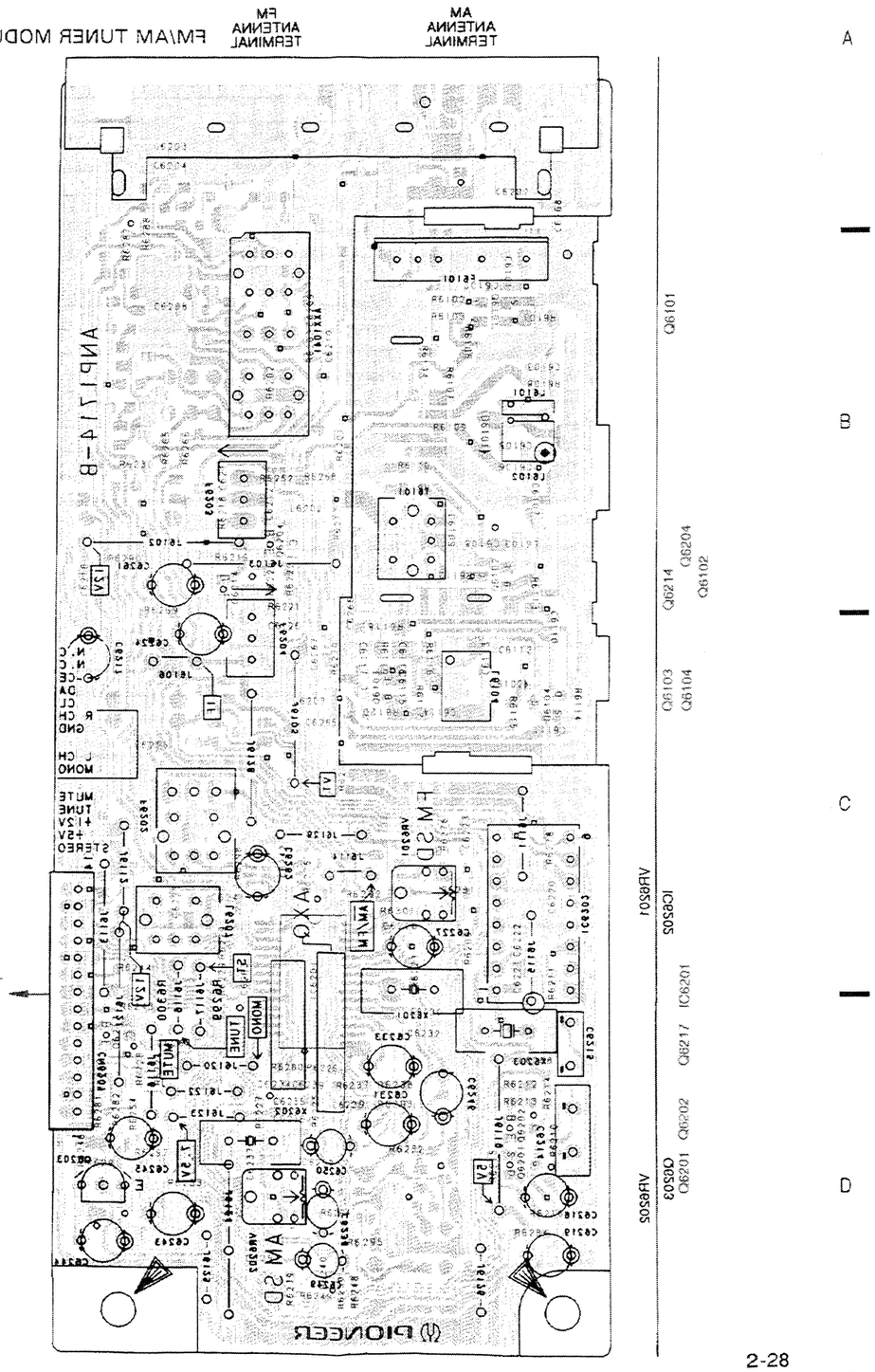
● This diagram is viewed from the mounted parts side.

PCB-4

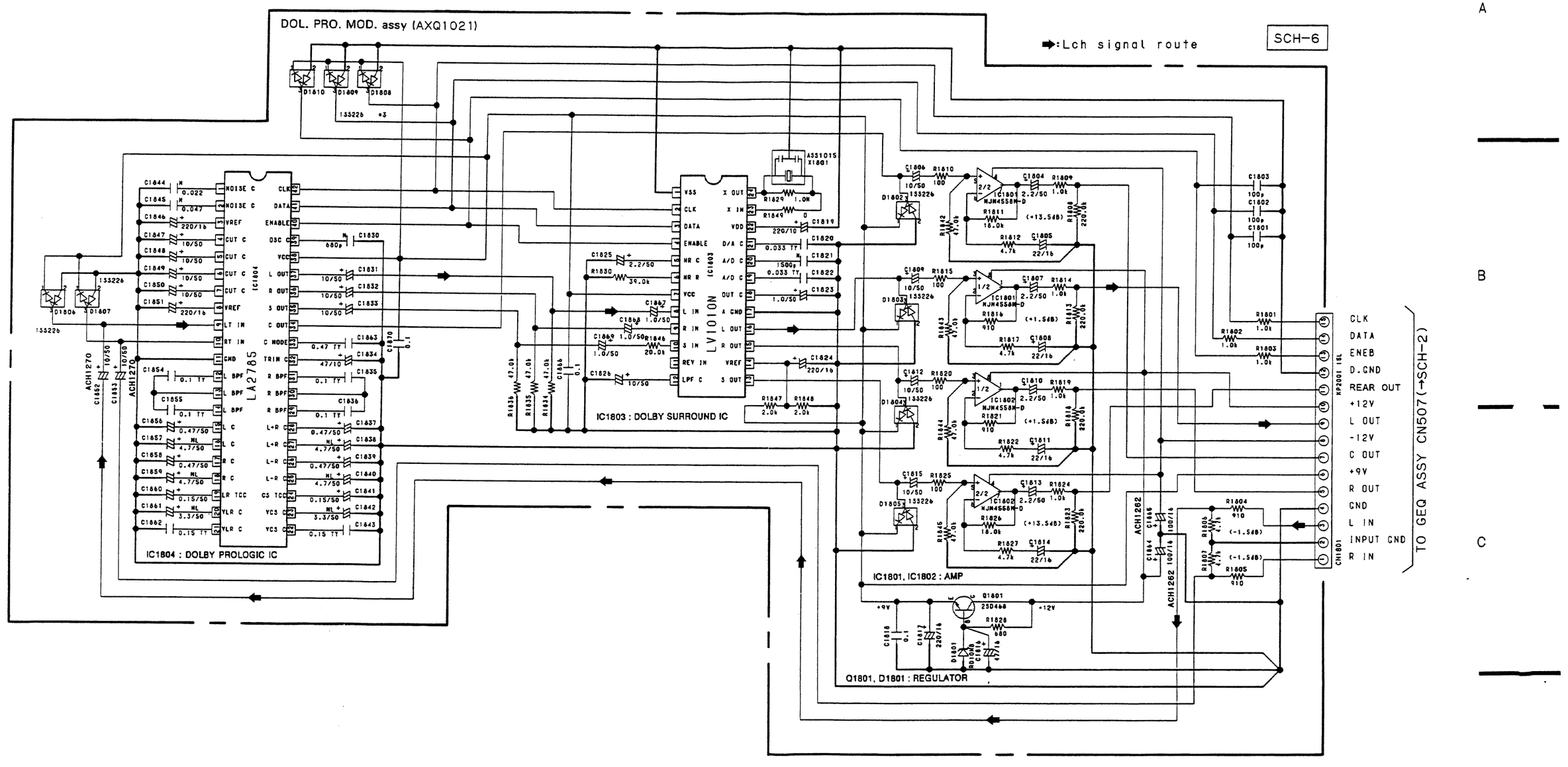


● This diagram is viewed from the foil side.

PCB-4



2.2.6 DOL. PRO. MOD. ASSY



SCH-6 DOL. PRO. MOD. ASSY

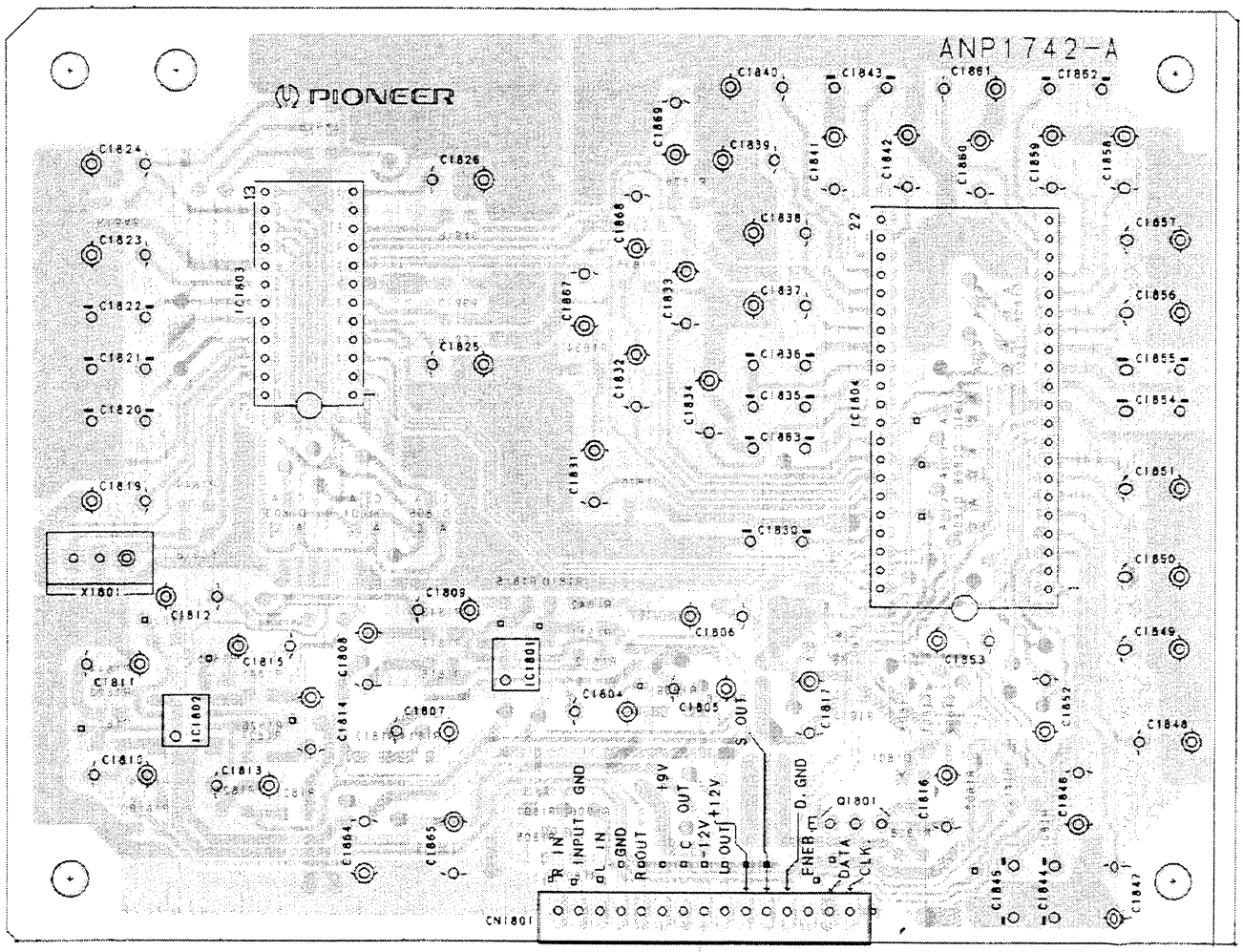
DOL. PRO. MOD. ASSY SCH-6

- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

PCB-5

IC1803 IC1802 IC1801 IC1804 Q1801

DOL. PRO. MOD. assy

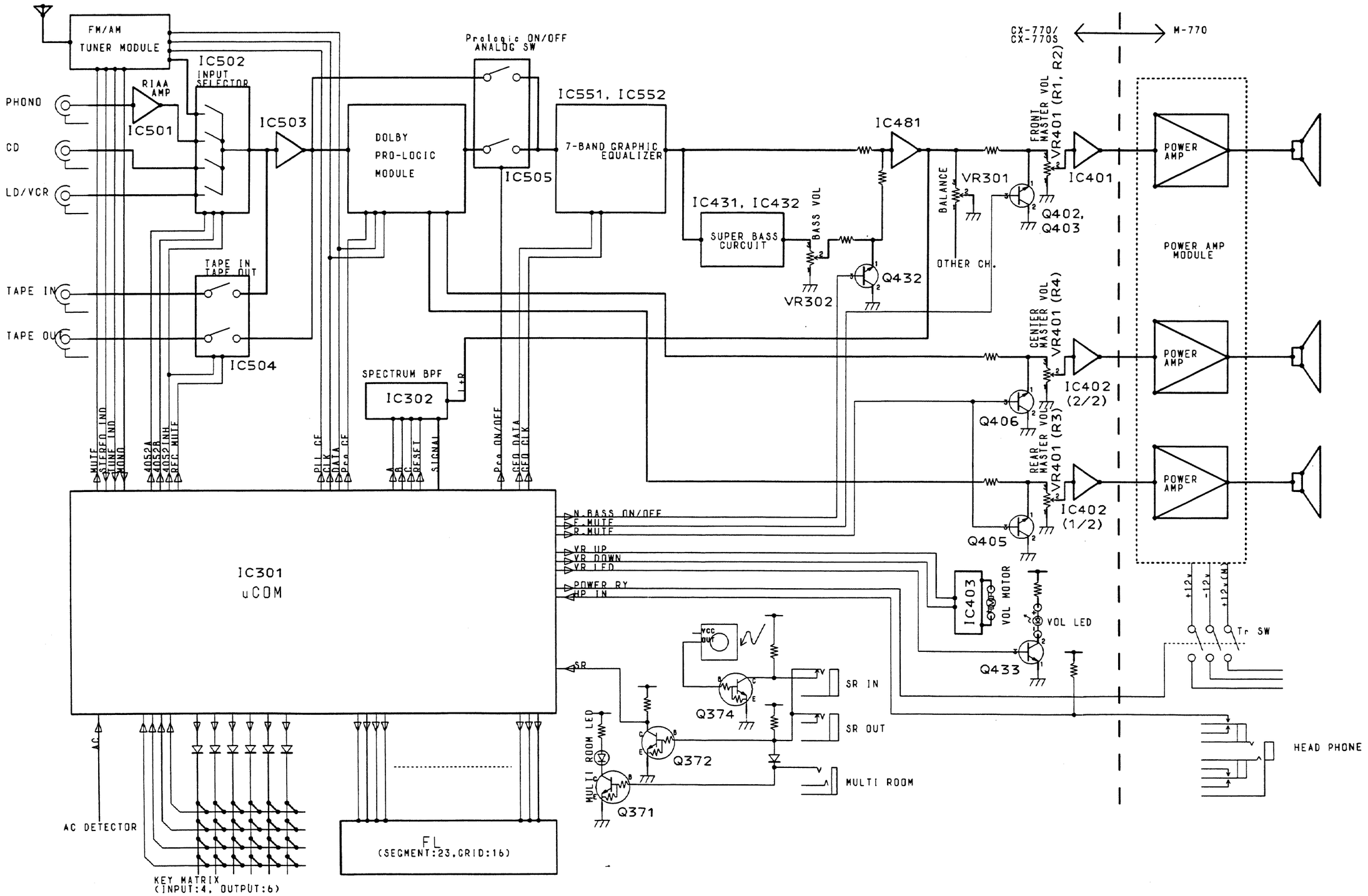


TO GEQ ASSY CN507

- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.

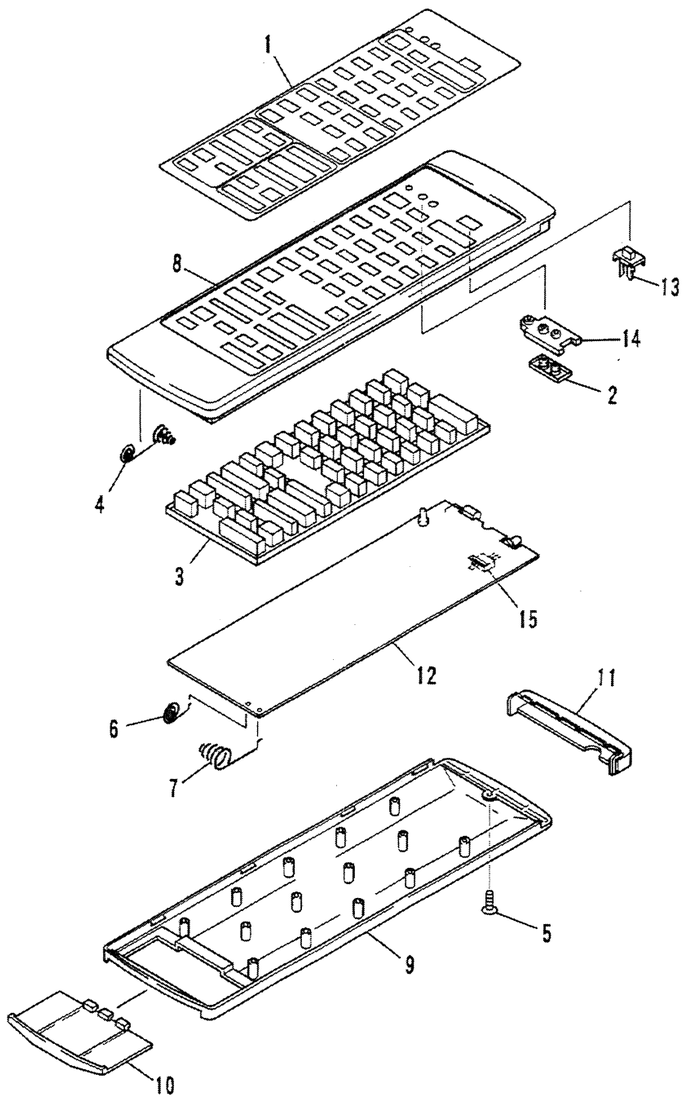
PCB-5

2.3 BLOCK DIAGRAM



2.4 REMOTE CONTROL UNIT (CU-CX007)

● EXPLODED VIEW



● PCB PATTERN

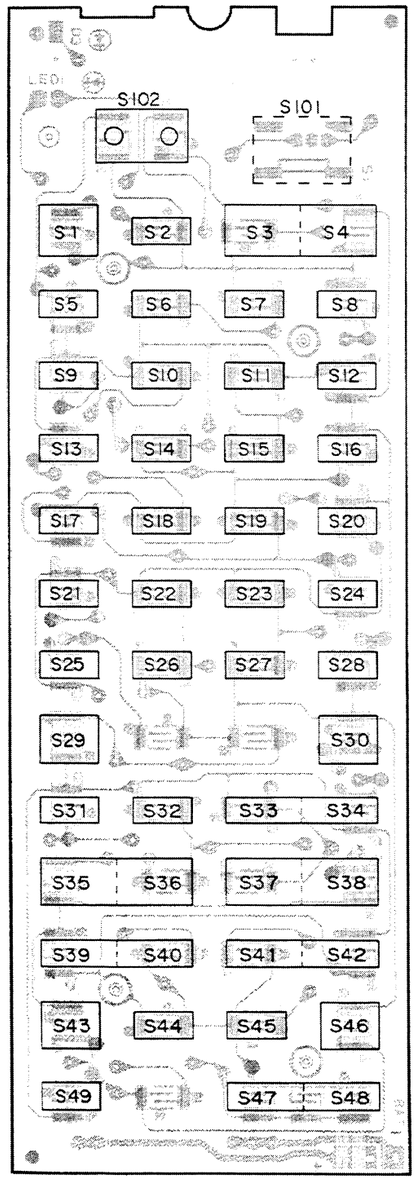
: Indicates a chip resistor.

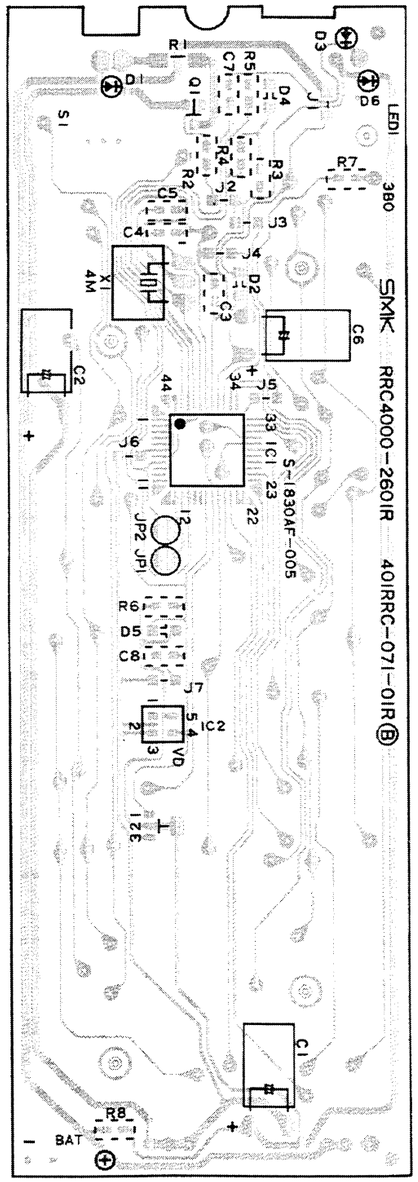
: Indicates a chip capacitor.

: Indicates a chip transistor.

: Indicates a chip diode.

PCB-6





● SCHEMATIC DIAGRAM

NOTE

- : Indicates a chip resistor.
- : Indicates a chip capacitor.
- : Indicates a chip transistor.
- : Indicates a chip diode.

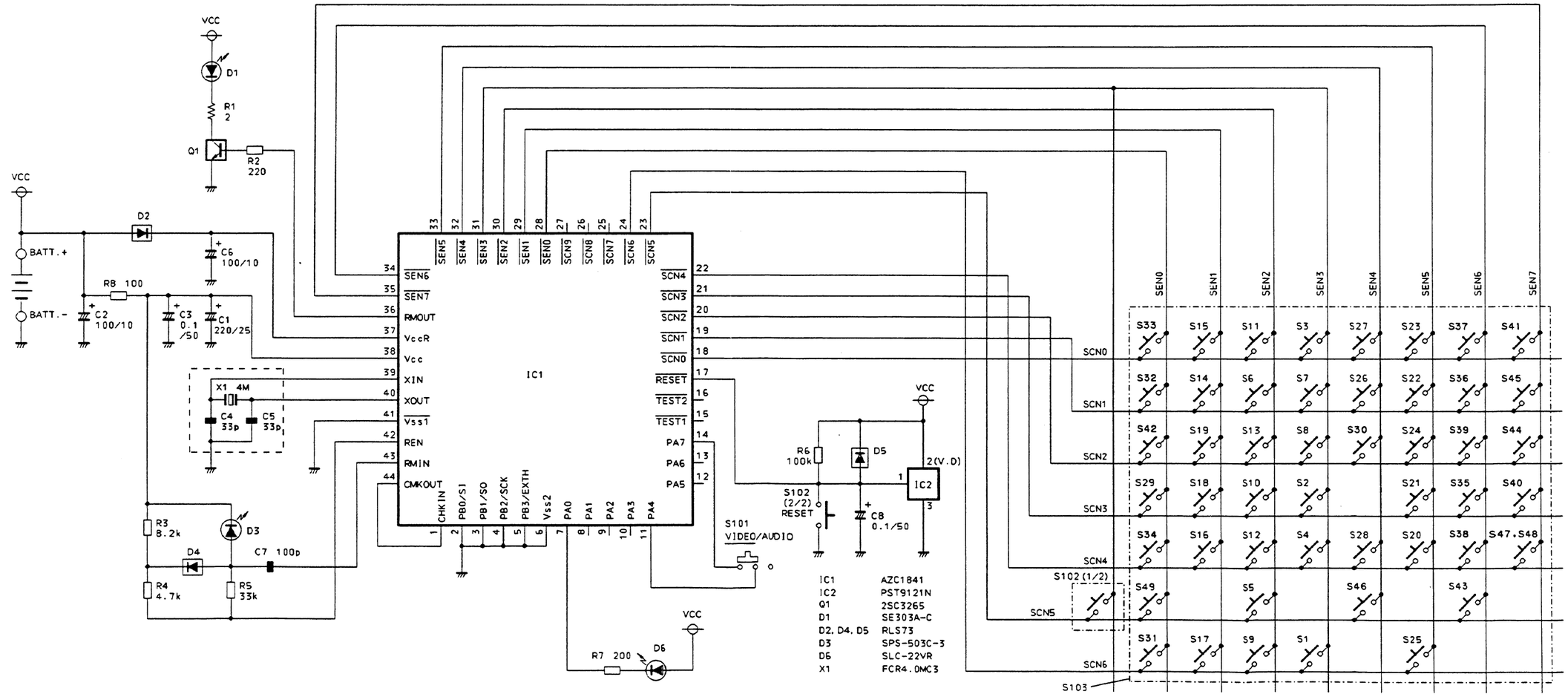
NOTE FOR SCHEMATIC DIAGRAMS (Type 2A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ⊐ or ⊏ V :
   DC voltage (V) at no input signal unless otherwise noted.
   ⇦ mA or ⇨ mA :
   DC current at no input signal unless otherwise noted.
7. **OTHERS:**
   - ⊘ or ⊘ : Adjusting point.
   - ⊣ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH-□ ON THE SCHEMATIC DIAGRAM:**
   - SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

S101 : AUDIO/VIDEO
S102 : LEARN · RESET
S1 : AMP POWER
S2 : FUNCTION
S3 : MUSTER VOLUME −
S4 : MUSTER VOLUME +
S5 : TV POWER
S6 : 1
S7 : 2
S8 : 3
S9 : BAND TV FUNC
S10 : 4
S11 : 5
S12 : 6
S13 : 0/10
S14 : 7
S15 : 8
S16 : 9
S17 : FREQUENCY TV VOLUME −
S18 : FREQUENCY TV VOLUME +
S19 : DISC
S20 : TRACK
S21 : DOLBY PRO LOGIC
S22 : 3CH LOGIC
S23 : TEST TONE
(S5 – S20 : TUNER/TV)

S24 : CENTER MODE
S25 : REAR LEVEL −
S26 : REAR LEVEL +
S27 : CENTER LEVEL −
S28 : CENTER LEVEL +
S29 : DELAY TIME
S30 : POWER BASS
S31 : DISC SELECT − (DISC SIDE A) ┐ CD/LD
S32 : DISC SELECT + (DISC SIDE B) ┘
S33 : DECK I (VCR CH −) ┐ TAPE/VCR
S34 : DECK II (VCR CH +) ┘
S35 : ⏸ ┐ CD/LD
S36 : ▶ ┘
S37 : ◀ ┐ TAPE/VCR
S38 : ▶ ┘
S39 : ⏮ (⏪) ┐ CD/LD
S40 : ⏭ (⏩) ┘
S41 : ⏪ ┐ TAPE/VCR
S42 : ⏩ ┘
S43 : POWER ┐ CD/LD
S44 : ■ ┘
S45 : ■ ┐ TAPE/VCR
S46 : POWER ┘
S47 : ┐ TAPE SELECT TV/VCR
S48 : ┘
S49 : SHIFT

SCH-7



IC1	AZC1841
IC2	PST9121N
Q1	2SC3265
D1	SE303A-C
D2, D4, D5	RLS73
D3	SPS-503C-3
D6	SLC-22VR
X1	FCR4.0MC3

SCH-7 SCHEMATIC DIAGRAM [For CU-CX007 (AXD7023)]

SCHEMATIC DIAGRAM [For CU-CX007 (AXD7023)] **SCH-7**